Croonian Lectures

ON THE

INFLUENCE OF THE CIRCULATION ON THE NERVOUS SYSTEM.

Delivered before the Royal College of Physicians of London,

BY WALTER MOXON, M.D. LOND., F.R.C.P.

LECTURE I.—PART I.

MR. PRESIDENT AND GENTLEMEN,—An essay might well be written on the consequences to Medicine of the rise and expansion of the science of Biology; to show how it affects medical study that the physiology of man has become a special branch of a physiology of living things. This is not the occasion for such an essay, nor even for such a remark; but the remark arises because, in beginning these lectures on the behaviour of the human brain under varying states of the circulation of the blood within it, I was of course induced, as a first step, to bring forward the natural history of the subject. But when I referred to the excellent and ably written text-book which is now universally employed as a students' manual in physiology, and searched in it for the physiology of the circulation in the human skull, I did not find a word upon the subject. I found a full and very interesting account of the tailing off of ranine intelligence which reveals itself when the several parts of the brain of a frog are successively cut away; but no notice of the curious and very important mechanism whereby the human brain is made secure within the skull under the varying stress of blood-pressure that accompanies bodily or mental exertion. I observed that the biological physiologist regards the human brain as at one with the vertebrate brain—a general kind of thing more easily studied in the frog, the dog, or the monkey, on account of its simpler development in these animals. The biologist thus takes vertebrate brains at large, and it appears that to him the blood-supply of the human brain is a detail respecting one kind of brain only, and he cares nothing for its congestion, and giddiness, and insensibility—such particulars are lost sight of in the large scope of biological science. For biology tends to wideness of scope and generality of principle. Indeed, it appears not to be quite happy far out of sight of protoplasm; it goes back to protoplasm to trace up the general nervous system, and says nothing about the cerebro-spinal fluid. But it cannot be conducive to clearness of medical thought upon the circulation in the brain that protoplasm should have displaced the cerebro-spinal fluid from works in which medical students learn Human Physiology. It is not as though protoplasm were better founded than the cerebro-spinal fluid. It is not so well founded; for there can be no doubt that there is such a thing as the cerebro-spinal fluid; nor is there any doubt that it fulfils vitally important functions which greatly concern those who are called upon to be clear about the causes of giddiness or insensibility. But it is by no means certain that there is such a thing as protoplasm. The biologist reduces the various behaviour of the nervous system to what is called the irritability of what is called protoplasm. He regards protoplasm with the same undoubting confidence in its reality as the physical philosopher has in the reality of motion, when he on his part reduces all kinds of activity in unliving matter to terms of what he calls motion, so that heat is a mode of motion, electricity a mode of motion, and light a mode of motion. Other philosophers, less restrained by fixation in the science either of living or unliving matter, generalise one sweep more widely, and tell us that vital motion is a mode of motion; so that we may take out all things knowable, even to human thought, in terms of motion, much in the same way as all kinds of value, even to human motive, might be taken out in terms of pence. But of course it is true that just in the same way that all kinds of value may equally rightly be taken out in terms of shillings or of pounds as in pence. And just in the same way as all kinds of activity in unliving matter might equally well be taken out in terms of electricity or in terms of light, as in terms of what is called motion. So also the behaviour of living matter may as rightly be taken out in terms of the brain cell or of blood as in terms of what is called protoplasm; for the only basis of knowledge in all these systems is equivalence in convertibility. The capitalist knows that his pound is convertible into so many shillings, or may be expressed in terms of shillings; the physical philosopher that his foot ton is convertible to so much electricity, or may be expressed in terms of electricity; and the biologist thinks that the nerve-cell is convertible to so much protoplasm, or may be expressed in terms of protoplasm. And the other philosopher, less restrained by fixation in the science either of living or unliving matter, thinks he knows that vital motion, even to human thought, is convertible to so much motion.

Meantime the physical philosophers have been led to say that heat is a mode of motion only because mechanical motion is more universally appreciated by our senses, so that it is natural to employ it as a standard. And for all we know the higher animals in the planet Jupiter may be so organised that they obtain mechanical motion only by difficult experiments, as we do electricity, whilst in their hot region they have electricity always obvious to their senses. In which case we may depend upon it they would naturally say mechanical motion is a mode of electricity. For there is no sense of reality in which electricity is not as real as mechanical motion, and it would be quite as right to adopt electricity as the standard, and say motion is a mode of electricity. In fact, electricity reveals the nature of motion, and motion reveals the nature of electricity. They mutually reveal their common nature: under certain conditions the one becomes the other. And the physical philosopher, for purposes of exposition, chooses mechanical motion, because it is the most tangible and the best known, and adopts it as the common standard for his reference and the basis of his thought and reasoning. But the biologist in his field reverses this plain method of dealing, and makes his thought and reasoning rest on protoplasm, which is not the most tangible and the best known of the things he deals with. Indeed, it is so far from being so, that it does not exist at all. There is no such thing as protoplasm. I have watched what is called protoplasm in what are its most nearly pure forms at work, and it was plain that its properties depended altogether on whose protoplasm it was, and that when anything is to be done with it or by it, you must accept it with its own peculiar powers as it is at work before you, and that if you act towards any living thing in terms of protoplasm with the idea of in that way getting a product of its life and nature, you find you have got hold of the wrong end of the stick, and that your abstract idea of protoplasm does not fit to the vital faculty which acts in, and I may say *is*, the living thing.

And whereas every living thing or part of a thing is held by the biologist to be a specialisation of protoplasm in the same way as light and galvanism are held to be specialisations of motion by the physical philosopher, there is no parallel at all in the sureness of the tenets in the two cases; for although motion considered apart from any moving thing is an abstraction like protoplasm, yet it is a simple abstraction which we can use in calculation and verify our calculated results by experiment. But protoplasm is a very complex abstraction, theoretically endowed with all the properties of living matter, and there are no means of testing how far this complex of properties when worked out theorectically in combination with other simple abstractions, like mass, velocity, &c., would be found on experiments to correspond with the calculated result, so that the conception of protoplasm has no stable basis like that of motion. And by means of it we do not get any established ground wherefrom to consider the phenomena of life, and we only spin out speculations by means of it, which when finished are no more realisable than the hypothetical conception with which they begin. Therefore I don't think it any real gain that the biological teacher of the medical student has displaced the cerebro-spinal fluid with protoplasm. And I am begging you to fix your attention particularly on this fluid, because it is upon this fluid that a great deal of what I have to say to-day centres itself.

It has long been known that the watery fluid within the ventricles of the brain finds entry and exit from the brain into the spinal canal, so that it comes and goes from spine to brain according as the pressure of blood in the brain is less or more; and in this way there is provision for a change in

the quantity of blood which can circulate in the brain. The degree in which the nervous system can exercise its special power, independently of direct action of its supplying vessels, is a question very important for the obtaining of clear views upon the complicated phenomena of nervous disorders. In these lectures I am going to endeavour to estimate the extent of disturbance of the nervous system which can be fairly ascribed to changes in the calibre of the bloodvessels and in the blood-pressure within them, so as to ascertain what is the true value of the term "congestion of the brain," and to show the relation of the epileptic fit to vascular action, and of angina pectoris to high tension within the vessels. This kind of question has been a great deal lost sight of by the pure physiologist, who seems to me, if I may humbly say so, to have let pass the consideration of some most interesting and important branches of specially human physiology in the modern pursuit of fundamental vertebrate life in that convenient victim and martyr, the common frog. I am now concerned with one such branch, and it is the study of the means whereby the circulation in the human brain is made secure, so that no augmentation of pressure in the brain—either from changes in the force of the heart, or from changes in the atmospheric pressure, or from changes of posture—ever produces any ill effect. Our best modern text-book on physiology scarcely deigns to notice the group of mechanical contrivances whereby the human frame is adapted to go upright. The text-books of twenty years ago used to set forth the several points in the human organism whereby the erect posture is made possible. Dr. Carpenter used to give a list of these, which I will not recount, but only mention that he left out one essential to the erect posture in man—necessary at least to his long maintenance of it—and that is, the ambition that induced him to get upon his legs. Now, for this a relative increase in the size of his brain was required; so that after vitalising and giving energy to brace up all Dr. Carpenter's mechanisms, there might be left enough nervous power to be willing to take the trouble to be upright. But this increased size of brain necessitated an increase of blood supply; a great increase it must be, considering how richly blood is given to nerve.

Meantime the same erect posture placed the brain so much aloft that blood supply to it is less easy. For consider the difference in hæmostatic conditions which arises when a column five or six feet long containing fluid is suddenly raised to the vertical or suddenly lowered to the horizontal position. Imitate the case with a model of some spongy material soaked in liquid, and, of course, as you raise the column of sponge the liquid in it will collect below, and as you lower the column the liquid will go to both ends equally. And, of course, it need not be said that the physical forces which act in dead matter act equally in living, so that this tendency of the blood in the living sponge which composes our frame has to be met and counteracted or all the mechanism for the erect posture would be of no avail.

The problem, then, is how to prevent the sinking down of blood from the brain. That there is risk of at least inconvenience from such mere opposition of gravitation to circulation is experienced very often by many persons in delicate health, who suffer a certain giddiness on rising from a stooping posture; a giddiness which may be accompanied by slight loss of sight. But this occasional and trivial inconvenience to some would of course be constant in all, unless there were provided a large means of checking the great tendency of the blood to act in obedience to hydrostatic laws and sink to the lowest possible level. The principal means whereby this is accomplished is doubtless the suction exerted by the practically closed cavity of the skull. Allowing all the [considerations which render this cavity less securely closed than a metal globe pierced only for entry and exit of to-and-fro pipes would be, the cranium nevertheless composes a very large space inaccessible to external pressure, except, firstly, by means of the blood in the vessels which enter and leave it, and, secondly, by means of the cerebro-spinal fluid. Let us remember the relatively not very large amount of this fluid in a healthy brain, and we must allow that blood within the skull is to a very large extent prevented from leaving the skull by the impossibility of air or any other substance than blood finding its way in to supply the place of the blood that would go out; and doubtless no part of the whole system of contrivance is equal in its efficiency to this suction. But whilst it is true that by far the greatest part of the blood would thus be retained by suction in the brain, it is also true that the incompletenesses of the closure of the cranium do allow some amount of variation in the quantity of blood which it can hold. This variation is chiefly allowed by the variation in the amount of the watery liquid in the ventricles.

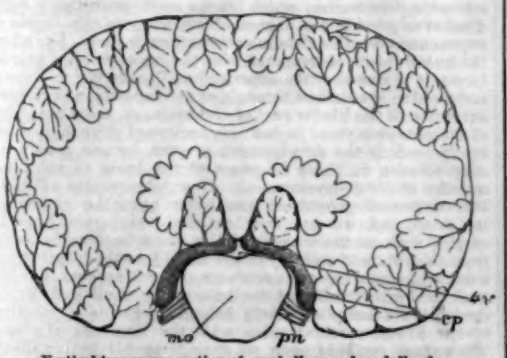
Now the part of the cerebro-spinal fluid which is within the cranium amounts in most persons to about two to three ounces, and it is to a large extent capable of being pushed out of the cranium, or drawn into it. This gives us a variable margin of sufficient importance to call for arrangements that may meet such sudden changes in the amount of blood as would arise in virtue of variations in this fluid. For though it may seem that three ounces do not amount to much when compared with the whole capacity of the skull, yet there is evidence that the quantity of blood in the cranium is only capable of small changes, and that not very large changes of quantity of contents in the skull are required to produce fatal symptoms. I used to weigh the amount of blood which had escaped into the brain in cases of apoplexy, and I never met with more than three ounces and a half of it. This had been sufficient to take away sense and life—that is, so far as quantity is concerned. When the tendency was to a greater bleeding, this showed itself in density or hardness of the clot, not in increase of it. In fact, there was no room for more, and the three ounces and a half correspond nearly with the three ounces of cerebro-spinal liquid, especially when we observe that apoplexy occurs in anæmic brains, in which the cerebro-spinal fluid is present in more than the natural quantity. That apoplexy occurs in anæmic brains I shall prove in my second lecture. Thus an amount of change in the contents, which bears but a small proportion to the whole capacity of the cranium, estimating this at about fifty-five ounces, is all that is observed in case of fatal pressure on the brain. It is true that somewhat more of extraneous substance can be introduced gradually into the cranium without destroying mental life. Thus I have weighed tubercle to the extent of five ounces from the brain of a child, who showed intelligence up to the time of a fatal meningitis, which had come on in consequence of the tubercle. But it is certain that a change of about three ounces is all that can be borne suddenly by the brain. And common movements of the frame must be supposed to be quite equal to produce a change of that extent. For when a person rises suddenly from the stooping posture the blood, which was favoured by gravitation in its flow towards the brain when the head was down, has now to run up to the brain through narrow pipes of bloodvessels, and against friction and gravitation. But if the circulation is feeble the pressure of blood towards the cranium may be deficient. One may estimate the great and important extent to which sudden uprising tends to reduce blood-pressure towards the brain by recalling how raising the arms will impair the power of circulation towards the hands, and how raising the legs will reduce the circulation towards the feet, facts of which the practitioner avails himself in checking hæmorrhage and in reducing inflammation or ulceration of the extremities. And it is well known that a person may even be led to feel faint by raising both arms for a long period. Now, the brain is being constantly put into the position of a raised arm or leg, and although by the suction I have referred to it is kept from such extreme changes as the hand or foot undergoes, yet the cerebro-spinal fluid allows of changes to the amount of about three ounces. But the way by which this watery liquid enters the cranium and brain is, as I shall show, a wider and freer passage, whilst the way in which the blood reaches the texture of the brain is by the narrow passages of the capillary arteries, and if the circulation is feeble, the heart may drive the blood less forcibly to the texture of the brain than the venous pressure in the spinal canal drives the cerebro-spinal fluid into its cavities. So that when the head is raised and the venous blood falls away more readily from within the skull, the cerebro-spinal water may outstrip the arterial blood in the race to supply the place. And thus the ventricles of the brain may tend to fill with water more quickly than the substance of it with blood, and so the brain blanches and the person feels giddy. And this is especially the case when a permanent anæmia of the brain has led to an increase in the capacity of the ventricles of the brain. Many elderly people with poor circulations feel more or less giddiness during a large part of the day from this cause, and if the circulation has become, through age and high arterial tension, very inefficient, every oscillation of the head, even in ordinary walking, will, if the

heart's power is at the time rather lower than usual, keep the person distressed with giddiness or a sense of insecurity, which makes him justly rather afraid of apoplexy, but which is a sign of anæmia of the brain. Apoplexy, however, occurs in anæmic brains.

This kind of giddiness, which is characteristic of age with its failing circulation, would keep the human race on all fours during the whole of existence if it were not for certain beautiful automatic mechanisms which tend on the one hand to automatically diminish outflow of blood from the brain, and on the other hand to automatically diminish entry of blood into the brain, so as to automatically keep the brain under all conditions at a certain state of pressure of blood. These mechanisms depend on elasticity of artery and general goodness of venous circulation, and it is the failure of elasticity of artery and the increasing lack of free venous circulation which cause giddiness so readily to appear in old age.

First, as to the mechanism whereby the entry of blood into the brain is automatically checked. For this end it is necessary that means of lowering the rapidity and force of the current in the vessels should be found. Now, the researches of physiologists have shown of late years that there is such a relation between blood pressure and the heart's action that they must infer the existence of a self-acting mechanism, which tends to preserve at a certain level the pressure of the blood. The seat of this mechanism is traced by experiment to the neighbourhood of the origin of the pneumogastric nerves. This inferential mechanism is doubtless the more fundamental and effectual of the automatic means of checking excessive entry of blood into the cranium. But anatomists have hitherto overlooked a very interesting mechanism in the human brain, which must plainly tend to check excessive entry of blood, and which, although not the most fundamental, let alone the chief or only means of automatically checking entry of blood, yet I think must be seen as a superadded contrivance necessitated by the large development of the brain in man, and the consequently large volume, and large change of volume, of blood to be provided for. I refer to the mass of choroid plexus of the fourth ventricle, which stretches down round the side of the medulla oblongata enclosed in the lateral offset of the ventricle, which I will call its *cornu*. Our anatomical works all speak of a sort of pouch from the side of the fourth ventricle, but none of them point out that this pouch is stuffed very full of tufts of bloodvessel in the form of choroid plexus. The cornu, as we will, if you please, call it, reaches down to, and presses upon, the pneumogastric nerve-roots.

FIG. 1.



Vertical transverse section of cerebellum and medulla oblongata, through fourth ventricle opposite the origin of pneumogastric nerves, showing: m o, medulla oblongata; 4 v, fourth ventricle; p n, pneumogastric nerve; c p, choroid plexus.

I said the cornu of the fourth ventricle presses upon the roots of the vagus. The proof of this pressure is interestingly given in the fact that in early life the cornu is little connected with the nerve-roots, whereas in later life, and especially in cases showing chronic distension of the ventricles of the brain, the vagus becomes firmly united to the cornu of the fourth ventricle. So much is this the case that you will commonly find, when the brain is removed with only ordinary care from the skull, that the sides of the fourth ventricle are torn open, and the choroid plexuses protrude prominently from them. I have here a specimen of a brain removed in the ordinary way, in which the choroid plexuses are thus exposed. The very slight drag on the pneumogastric nerves which was caused by the cutting of the roots with a sharp knife has sufficed to pull open the lateral cornu of the fourth ventricle on each side.[1]

I would also here draw attention to the fact that the pneumogastric nerve, of all the cranial and spinal nerves, runs, perhaps, the shortest and straightest course from its origin to its escape from the dura mater. It forms, as it were, the central nerve of the whole system. Above it all the nerves incline upwards or forwards to their exit; below it all incline, more or less, downwards. But this nerve runs a straight, short, tense course, and as it is fixed at each end a little pressure must tell on it very directly. An observation of my late friend and colleague Mr. Hilton will serve to illustrate how tense is the root of the pneumogastric nerve, and, consequently, how subject to mechanical force applied to or about it. In Mr. Hilton's lectures on "Rest and Pain" he says, "But I suspect that if in such cases (concussion of the brain) the base of the brain be carefully examined the cause of death may be discovered in injury to the filaments of the pneumogastric nerve, near the origin from the medulla oblongata. Some years ago I clearly made out this lesion in a case of concussion which caused the patient's death. The only indication of local mischief which I could discover was the laceration of some of the filaments of the pneumogastric nerve." This observation of a most experienced and most skilful observer, seeing that no other part within the skull was hurt and the pneumogastric roots were torn, shows, in a conclusive way, how tensely they are stretched. And if they are tensely stretched, slight pressure upon them must be productive of not unimportant results.

Now, it cannot be a matter of chance that the roots of the vagus should be stretched so tightly across from the origin to the dura mater as to be specially picked out for laceration, and at the same time that the vagus alone, of all the cranial nerves, should receive a peculiar offset from the fourth ventricle. So that the ventricle puts out a finger-like process, or cornu, packed tightly full of a mass of bloodvessels to reach these stretched roots of the nerve, and to press upon them so hard that as life goes on the nerve and the finger-like process become firmly united together. Whatever may be the meaning of such an arrangement, it cannot be thought that it would exist without any signification or service, or function. No other nerve is thus treated, and the question therefore arises, What are the effects of pressure on this particular nerve? In answer to this question we may first observe that, if the vagus is stimulated by galvanism, the heart's beat is caused to stop thus:

FIG. 2.

Inhibition of frog's heart by stimulation of vagus.

Again, if the pneumogastric nerve is stimulated by digitalis, the result is to stop the heart in a similar way if the dose is large; but if the dose is moderate the heart's action is not stopped, but only made slower. And by graduating

[1] I may commend this very easy laceration of the cornu of the fourth ventricle by a slight drag on the pneumogastric to surgeons, for explanation of such cases of fatal concussion of the brain as appear at first sight to offer no anatomical lesion. The shock in fracture of the base is transmitted largely towards the eighth pair of nerves, and this pair is tensely stretched, so that if there is a severe jarring in the line of the posterior lacerated foramen, a sufficient vibration of the vagus nerve may be set up to tear open the fourth ventricle. Also, as to cases of unusually free and large discharge of watery fluid from the ear in frac-

the dose of digitalis the heart may be made to go slowly in corresponding degree. But what will be the effect of pressure upon the vagus? An answer is furnished by an observation made by Czermak. This distinguished physician had a small osseous tumour in his neck, and he was able by pressing the vagus against this tumour to stop at will the beating of his heart.

We have, then, a mechanism plainly intended to do something, and we find the thing this mechanism is calculated to do is to check the action of the heart. Let us now see whether any beneficial result will follow from such checking of the action of the heart under the circumstances in which the mechanism is put in operation. It is clear that as the finger-like process is stuffed with tufts of bloodvessels the pressure it exerts will depend on the amount of blood in the vessels. The more blood the more pressure, so that it is when the vessels of the choroid plexus become distended with blood that the finger-like cornu which contains the bloodvessels will press upon the pneumogastric nerve and check the action of the heart, and thus prevent excessive inflow into the vessels of the brain. In fact, the contrivance will act exactly like the ball-tap which controls supply to a water cistern. Now, I am not saying that this is the only means of such check-action. Creatures unprovided with it show an automatic check upon the action of their vascular mechanism. But it is certain that the contrivance I thus describe will tend to control the entry of blood into the brain, and I think its development in the human brain bears a relation to the great size of the brain and to the extent of its blood supply, which requires a supplementary automatic check upon the entry of blood. Perhaps when this check is further developed in the advancement of the race the balance of activities between the mind and the heart may be still better regulated than is the case at present.

But I shall be asked for proof that when there is pressure of blood into the brain, the pulse is actually checked or slowed. Evidence is not far to fetch. Let us take a simple case—one which is constant in observed results. Take the variations in rate of pulse when we change our posture from horizontal to upright, and let me cite the well-known and careful experiments of Dr. Guy. This physician found by an extended series of observations that the rate of the pulse, when persons are standing, averages 81, but on these persons lying down, the rate of the pulse falls to an average of 67. The effect is just as if a moderate dose of digitalis had been taken. Lest it should be said that the increased rate of the pulse in the erect posture is due to the greater muscular exertion of standing, the persons under experiment were strapped to a board and supported in such a way that they did not use any exertion to keep themselves upright; and yet, when they were caused to pass from the horizontal to the erect position by a revolving movement of the board, the same increase of pulse-rate took place. Now, in the upright position the blood tends to drain easily away from the brain and reaches it with difficulty, so that the choroid plexuses would be less distended and the pneumogastrics less pressed upon. But in the horizontal position the blood goes to the brain more freely, the choroid plexuses are more distended, and the pneumogastrics more pressed upon, thus checking the action of the heart as if the person had taken digitalis. And, indeed, it will be found true that causes which involve too great a general pressure of blood into the brain slow the pulse. Thus, as we shall presently see, the effect of going into compressed air is to slow the pulse. Also the effect of a retention of great excess of blood into the skull in general inflammation of the brain is to slow the pulse. A slow, irregular pulse is, of course, one of the most significant of the group of symptoms which usher in meningitis. It is true that later in the course of this disease the pulse becomes quick again, and indeed quickens until it becomes impossible to count it. And it is true that when this quickening occurs the brain is still overfilled with blood, and these things being true, we have to explain why now the pneumogastric is no longer pressed upon and inhibited. The answer is quite clear. Under my care, as I now write, is a child in the clinical ward at Guy's; it has passed through the early stages of tubercular meningitis, and is in the last stage, with pulse 180 in the minute. I have given in the last two days large doses of tincture of digitalis to this child. Now digitalis has the power of calling out the action of the pneumogastric nerve, and so slowing the pulse. But in the case of this child, the digitalis does not show the slightest degree of such power—the child's pulse is quicker instead of slower. It is just as if a large dose of atropine had paralysed the pneumogastric, in which case it is known that digitalis will not slow the heart. We have here, then, evidence through the inefficacy of digitalis, that the pneumogastrics are paralysed, and hence pressure on their roots in the cranium naturally produces no result, any more than do the large doses of digitalis.

Such being the means of checking excessive entry of blood to the vessels of the brain, let us now take into consideration the automatic mechanisms which tend to check the exit of blood from the brain. The object is to oppose an automatic impediment to the exit of blood from the cranium which shall be efficient in proportion as the tendency of the blood to leave the cranium is exaggerated. First of all we may notice that there is a tendency to disfavour a ready exit of blood from the brain shown in the fact that whereas the arteries of the brain enter the base of it—that is, enter the part nearest to the heart, thus receiving their supply with all possible directness, and whereas the arteries of the brain then run upwards over the brain, the veins do not then descend in company with them, as veins generally do, but they run, for the most part, just the opposite way, ascending towards the top of the brain against the attraction of gravitation. The obvious result of such a disposition of the venous current is to delay the exit of blood, so that in case of feebleness of the current that very feebleness would tend to cause the blood to fail to go rapidly upwards against gravitation, to reach the sinuses, and escape from the skull. Now, Virchow also called attention to this retardation of motion of blood in the cerebral sinuses, especially by the dilatations of calibre and projecting partitions in the walls of the sinuses; and Dusch, with reason, further ascribes a retarding tendency to the peculiar form of the canals of this portion of the venous system, seeing that by deviating from the cylindrical form the proportion of the surface by which the blood meets the walls of the sinus to the bulk of the blood within the sinus is increased so that there is greater friction in proportion to volume.

But another and much more elaborate and efficient check to the exit of venous blood from the brain is seen in the curious opposition between the course of the current in the great veins at the back of the brain and the course of the current in the longitudinal sinus. Here we shall observe a self-acting mechanism which bears a most interestingly coördinated relation in its degree of efficiency to the degree of requirement which exists in each particular case. For when the human brain is compared with the brain in allied animal forms, it is seen that the superior intelligence which characterises Man is obtained through, or at least *with*, a backward extension of the hinder part of the brain, or, more properly, of the cerebrum; and in fact this backward growth does actually occur in the development of each human person, as may be seen in these diagrams of the brain in the later months of fœtal development. Now, observe the effect of this backward growth of the brain upon the course of its veins, and we see that as the brain goes back it carries with it the sources of the veins backwards away from the points of delivery of the blood into the longitudinal sinus which receives their contents. For it appears that the backward growth alike of the brain of the skull and of the dura mater takes place chiefly behind the points of junction of the hinder cerebral veins with the longitudinal sinus. The natural result of such an arrangement is to this effect. That just in proportion as the brain is developed backwards with the increase of intelligence and with the erect posture which intelligence seeks, just in such proportion is the blood from the newly developed part of the brain sent forwards into the sinus which receives it. But the blood in the sinus which thus receives a forward current is itself going backwards, and is in fact the blood coming from the front of the brain. Hence in the sinus there is an opposition of this current from the front of the brain to the current from the back of the brain, which meet and check each other and so diminish the freedom of exit of blood alike from the front and back of the brain, and detaining and making less free the rush of blood in the anterior part of the brain, which the erect biped shares with lower animals, and perhaps keeping the animal

tures of the base, it may be noticed that the damage done to the skull is apt to run through the temporal and occipital bones where they meet; and in the violent laceration and crushing action of the crash the pneumogastric nerve is liable to get a sharper pull than is given it in cutting it with a knife. If, then, at the same time, a fissure is made through the dura mater and bones, reaching the tympanum and tearing its membrane—and I have traced such a fissure in more than one case,—a direct road is thus opened for the flow of liquid from the fourth ventricle through the external ear.

down in him to some degree; at the same time staying the blood in the whole increased mass of brain so as to render any movements in the blood less sudden. In this way the greater size of brain that induces the erect posture and goes with a disposition to take up a great variety of postures with more or less brain activity, this greatly increased brain, is kept accommodated with blood by reduction of tendency to outflow of its venous current. In short, the brain is compelled to economise its supply. Such a meeting of the backward current by a forward current must have the same effect as occurs when at the mouths of rivers the current of the river is met by the rising of the sea, so that a rise of water in the river is a consequence as in the production of tides. Nay, the obstruction being by means of one current actively opposing another is so direct that it may almost be compared to a lock in the course of a stream. The result as to the outflow from the longitudinal sinus will be that, instead of a current from the veins of the brain running with a certain velocity through and out of the sinus, the forward and backward currents neutralise each other in the sinus and the blood goes out from it, only as an overflow under the pressure existing in the veins at the time; no overflow if no pressure. And if we trace the effect backwards upon the state of the veins we see that it must tend to keep the veins full under all circumstances, locking the current in when it is feeble, and so preventing too ready an escape of blood in sudden change of posture, &c. On the other hand, when the current of blood through the brain is strong, the antagonism of the blood-streams would cause them to oppose and lock each other, perhaps too thoroughly, so that a scheme of relief is necessary as a sort of weir or escapement to allow excess of blood to pass by the lock which there is in the longitudinal sinus. This weir is provided by sending the blood from the whole of the lower parts of the brain, by means of the inferior longitudinal and straight sinuses, to a point beyond the lock which I have described; so that there is thus a free exit for some of the blood when the pressure is great.

Now, if we consider the parts of the brain that discharge their blood beyond the lock in the longitudinal sinus we see that they include the parts more essential to animal life, especially the great ganglia at the base of the brain in the medulla oblongata, pons Varolii, thalami, and parts of the corpus striatum. Blood is sent to these essential parts of the brain immediately the arteries enter the skull, so that they get their supply at high pressure, and the blood comes away from these parts of the brain by veins that join the sinuses of exit at points beyond the lock, and near the ending of the sinuses in the jugular veins; nay, some part goes independently through the inferior petrosal sinus directly out of the skull. Thus a free circulation takes place in the vital parts of the brain, whilst those parts which subserve only the relative unessential process of thinking have their blood-current partially locked, and are oblige to economise it, the free circulation of the blood in the vital parts of the brain relieving the lock when the pressure is great.

Amongst the parts that receive their arterial supply immediately the great vessels enter the skull are the choroid plexuses both of the lateral and fourth ventricles, and I have already shown how the overfilling of a particular part of the plexuses in the fourth ventricle acts like a ball-tap in putting a direct check upon the entrance of blood into the arteries of the brain. But a very considerable easement of the stress of blood is provided by the great capacity of the choroid plexuses themselves. These plexuses will contain much blood, and when the entry of blood into the brain is free they fill rapidly with it, and as they lie in the ventricles of the brain, and are bathed by the cerebro-spinal fluid, they press upon and expel this fluid into the spinal canal, where it finds accommodation by pressing in its turn on the spinal vessels. The veins from these plexuses form part of the escapement system.

And this locking system which I have described does not act without telling slowly on the arteries which feed it; for these arteries being relatively unable to empty themselves, as other arteries can and do, have to suffer greater strain; and so in time the arteries which feed the locked circulation in the seats of will and thought become injured, and the sum of injuries accumulates upon them; whereas the more unimpeded vessels of the base of the brain, which feed the parts essential to life, whose veins form the weir, are not so much strained or so much injured, because they are unobstructed. Hence, when at length some overstrained vessel must burst or be blocked, the vessel which so suffers is in nine cases out of ten a branch of an artery which sends blood to the locked longitudinal sinus, not a vessel which sends blood favoured by gravity to the more open lower sinuses.

Again, I think it reasonable to reflect farther that wearing out of the cerebral arteries would affect first the arteries of parts whose activity is a matter of education, and therefore of will and intelligence, because the activities which are organised through education are, as it were, grafted on the more stable activities that are natural to animal life. And the exaggeration of action which education compels cannot be supposed to be prepared beforehand by the animal development in the same way as the animal development prepares beforehand a provision for the functions of purely animal life, so that educated activities act through and with a relatively less well-prepared vascular system than the more natural activities are favoured with. And hence, when a general difficulty overtakes the whole circulation of the brain, the least stably-organised and overstrained vessels of the parts whose function is exaggerated by education would give way first. In this manner we may explain why it is that either the distal portion of the upper extremity, the chief subject of education, or else the organisation for speech, one or the other of these is the first injured in trivial, and the last to recover in severe arterial breakdown. I think it is from this cause that the strain on the locked system of cerebral arteries picks out for its earliest victims the most highly educated parts. So that an attack of hemiplegia nearly always lets off most lightly the limbs and parts of limbs which subserve the animal procedure of walking and the swing of the shoulder and elbow, and so forth, and fastens itself on parts whose education has spun out and elaborated, and relatively weakened the vascular supply of their department of the nervous centres. These flourishing but not purely natural departments fail just as you may see often upon grafted rose-bushes that a more vigorously growing graft, which has flourished grandly whilst the stock was sound, will be first to wither when the stock begins to fail; whereas natural shoots, which before were more moderate in their luxuriance, will commonly survive.

Gulstonian Lectures
ON
ANÆMIA.

Delivered before the Royal College of Physicians,

BY SIDNEY COUPLAND, M.D., F.R.C.P.,
PHYSICIAN TO THE MIDDLESEX HOSPITAL.

LECTURE I.—PART II.

Etiology of Anæmia: Loss of Balance between Blood Formation and Blood Destruction; Deficiency in Income or Excess in Expenditure, or both combined. (a) *Defects of Blood Formation:—Quantity and Quality of Food—Oxygen—Derangement of Digestion, Assimilation, Sanguification.* (b) *Excess of Blood Destruction:—Prolonged Muscular or Nervous Activity—Excessive Secretion—Catarrh—Inflammatory Effusions—Suppuration—Hæmorrhage—Albuminuria—Malignant Growths—The Cancerous Cachexia—Tubercle—Fever—Special Blood Changes, as in Scurvy, Rheumatism, Syphilis, Malaria.—Mineral Poisons: as Lead, Mercury, Phosphorus (?)—Parasites. Influence of Age, Sex, Heredity, Occupation, Light, Air, and Temperature—Climatic Conditions.*

HAVING thus considered the chief points regarding the composition of the blood and its variations in anæmia, I pass now to inquire in what way and under what influences the anæmic condition is induced. This inquiry involves the whole subject of the nutrition and expenditure of the body, together with other factors which, inherent in the individual or operating from without, tend to place the organism in a state unfavourable to the complete performance of the functions of the blood. All the complicated processes of the living animal organism are comprised in a series of changes in composition of the elements of the body, and especially of the blood, for it is through it that the normal balance between decomposition and reconstruction

takes place. The cycle of changes must be complete, the amount of nutriment conveyed by the blood must be sufficient to replace the waste occasioned by tissue-change, and this latter must not be out of proportion to the amount of nutriment if the balance is to be maintained. If there be defects in the supply, the blood and tissues suffer inanition; if excess in expenditure, they suffer undue consumption. In other words, in so far as its vital processes are concerned, the body may be regarded as a complex machine requiring a definite supply of oxidisable material and of oxygen for the performance of its functions—functions which may be expressed in terms of mechanical force and its correlative, heat. We have, therefore, to consider the means whereby such material is supplied, and its supply maintained and regulated, to deal with the manner in which the body takes in this material, and how it disposes of it. If the material itself be deficient in quantity or quality, or if the methods by which it is prepared for disposal be defective, the mechanism of the body will, *pro tanto*, be deranged. The blood will be poorer in the material to be disposed of. On the other hand, if the mechanism for the conversion of the material into force be faulty, so that an excessive amount is used up in the work of the body, the blood again will be impoverished. In seeking, then, for the known causes of anæmia, we may expect to find them in these two directions—deficiency of income and excess of expenditure. I will speak shortly of each of these in turn.

In dealing with the subject of food in relation to the blood and tissue changes, attention may be mainly directed to the nitrogenous ingesta, which serve the purpose of building up the tissues, whilst the waste of tissue is measured by the amount of nitrogen excreted in the form of urea. The other organic constituents of a mixed diet—fats, carbohydrates, and gelatine,—do not directly influence tissue metamorphosis; but are none the less important in maintaining the body in a state of health, supplying by their direct oxidation heat and force, which otherwise would have to be furnished by the conversion of proteids. A sufficiency of water and of salts is also necessary to enable the processes of nutrition to go on normally, and indirectly their diminished supply induces blood changes allied to those of hypalbuminosis. The whole blood is reinforced by taking food; both red and white corpuscles are increased, and the capacity of the blood for oxygen thereby augmented. There are differences of opinion as to the precise manner in which the proteid constituents of food are disposed of, but this much is clear: that part is directly converted into fats and urea, the former to be further oxidised and eliminated as carbonic acid, or stored up in the form of adipose tissue; part retained by the liver to subserve its glycogenic function; part devoted to tissue metabolism; and perhaps a further portion to remain in storage in the blood, to be utilised in case of need. This last-named destination of the proteids is disputed by Dr. Michael Foster (to whose work I am largely indebted for this portion of the subject) on the ground that metabolism does not take place in the blood itself, but only in the tissues; and that the comparative excess of consumption of proteids in the early days of inanition, as shown by Voit and others, only proves that there is a store of material above the immediate wants of the body, not that the place of this storage is the blood. It is found also that nitrogenous food directly provokes tissue change up to a certain point, the limit being in great measure determined by the amount of oxygen available, so that the increased metabolism must be in relation to the increase of hæmoglobin in the blood and of its capacity for oxygen. Therefore, also, oxygen is as essential as food; and when from defective blood formation the amount of oxygen in the blood is diminished, tissue change is arrested, and certain retrograde metamorphoses take place which form the leading effects of the anæmic state. Quinquad found in certain cases of inanition a reduction in the hæmoglobin to one-sixth of the normal, and proved also the rapidity with which this constituent is reinforced when food is taken by starving persons; and Voit's experiments established the fact that in starvation the blood wasted in direct proportion to the loss of body weight. This obvious cause of anæmia finds abundant illustrations in disease. There is no anæmia so profound as that which accompanies grave organic disease of the stomach. Indeed, Dr. Fenwick is of opinion that the fatal forms of progressive anæmia, to which hitherto no satisfactory cause has been given, are due to atrophy of the gastric glands; that such an atrophy—if it be primary—would suffice to produce this grave anæmia is possible, but it should also, one would think, be more often accompanied by general wasting of the body—a wasting which is not by any means a constant feature of "idiopathic" anæmia. When there is wasting, latent gastric disease may be suspected. A few weeks ago there was admitted under my care at the Middlesex Hospital a man sixty-three years old who had been attacked with hemiplegia the day before. For six months past he had suffered from dyspeptic symptoms, and had grown very pale. The pallor had rather rapidly increased of late, and on his admission it was most extreme; but there was no history of any hæmorrhage, and only equivocal evidence of its occurrence in the blackening of the fæces. He was, further, much emaciated, but careful examination failed to detect any abnormal condition of the abdominal organs. One could only suspect some latent gastric disease—cancer or ulceration, with unnoticed hæmorrhages—and attribute the recent increase in the pallor to the supervention of a cerebral hæmorrhage. The number of corpuscles was 25 per cent. of the normal. For upwards of two weeks he lay in an impassive, corpse-like state; and on his death we found a chronic ulcer of the pylorus, with general chronic gastritis. The hemiplegia was due to blocking of the left internal carotid and middle cerebral artery, the former vessel being much narrowed by atheroma at its origin. Such cases as this must be eliminated before diagnosing idiopathic anæmia. Any interference to the reception or proper digestion of food, as imperfect mastication, hindrances to deglutition, functional dyspepsia, and also irregularities in taking food, as well as deficiencies in its quantity or quality, rank among causes of anæmia needing no further illustration. And as oxygen is as necessary as the ordinary elements of food for tissue metamorphosis, any interference with its due supply favours anæmia, as proved in the persons of those who habitually dwell under conditions of bad ventilation, or impurity of the atmosphere—conditions so universal and prevalent that they may fitly be included under predisposing influences. They explain the anæmiating influence of life in a crowded city, with its smoke-laden atmosphere, as contrasted with the conditions obtaining in the purer country air. Derangements in digestion, especially those of simple functional dyspepsia, are maintained by the anæmic state they induce, and it is often difficult to find where the vicious circle commenced; hence the liability to mistake effects for causes, which is one of the chief problems connected with this subject.

Of the glands which aid the peptic in the labour of digestion, the liver and pancreas may severally, when deranged, be the cause of profound inanition and anæmia. The liver has so many other important functions, and is probably so directly concerned in the process of blood destruction (and possibly of its formation also), that the manner of its action in producing anæmia is more complex than that of the pancreas, which is more purely concerned in the digestive process. Of diseases of the pancreas, however, there is only one with which we associate definite symptoms, including a marked anæmia, and that is cancer; when we have introduced a new element, the abnormal cell-growth, aiding in the impoverishment of the blood. But the marked wasting and bloodlessness accompanying such disease are surely out of proportion to the development of the cancerous mass, and are readily accounted for when the large share taken by the secretion of the gland in the digestion of proteids is borne in mind.

Passing to the processes of assimilation and absorption, it would appear from physiological data that the lacteals are little concerned in the removal of products of proteid digestion, being mainly devoted to the absorption of fatty matters. This, however, is hardly consistent with the extreme degree of inanition associated with chronic mesenteric disease, which points to a lacteal as well as a portal absorption of nitrogenous matters. We are thus led up to the final stage of blood formation; for derangements of the whole lymphatic system, and of the allied blood-forming glands, play a very notable part in the etiology of anæmia from inanition. For in the work of nutrition the share taken by the lymph is not less important than that of the blood itself. Of the two fluids, the lymph, which has its analogues in the whole animal kingdom, would almost seem to be the more necessary. But the lymph contains no hæmoglobin. This special substance—found in all vertebrates—is that which gives the blood its distinctive character, and enables it to perform its respiratory function in the widest sense. The lymphatic system is not a mere appanage to the blood system; it is an essential

complement to the latter, and reinforces it in blood-corpuscles.

As I have previously pointed out, the process of blood formation, in so far as its distinctive cellular elements are concerned, appears to take place in several organs and regions of the body, where blood and lymph systems blend, and we look naturally to disorders in their mechanism to explain imperfections in the composition of the blood, not accounted for on more obvious grounds. Such derangement might result in the imperfect formation of corpuscular elements, in an over-abundant supply of leucocytes, or a relative increase in these, and of immature corpuscles failing to be transformed into the red globules. Such conditions do occur, and until we are in a position to give a name to the morbid change in the cytogenic organs themselves, we are bound to use provisionally such terms as leukhæmia and anæmia to denote the diseases of which the blood state is only a secondary result. We may be able to differentiate a leukhæmia due to splenic, lymphatic, or medullary disorder respectively, and the same may be possible as regards anæmia; and there is nothing incongruous in the idea, for example, that in Hodgkin's disease there may be sometimes a condition of lymphatic anæmia, and sometimes a condition of lymphatic leukhæmia, the question as to the distinction between such forms being one of the relative degree to which red corpuscles and leucocytes are respectively increased or diminished in number. It is from the analogy afforded by the existence of such diseases that we are driven to conclude that cases where anæmia is throughout the leading and only symptom, depending on no derangement of normal nutrition, either in the way of income or expenditure, are due to changes in these blood-forming viscera. At present but little progress has been made in this direction, and as I hope to show the derangement at the root of idiopathic anæmia is hardly more known to us than it was to Addison, who in his search for some organic change in these organs in such cases discovered the supra-renal disease, and brought to light a new clinical entity, whereby his name has become famous.

Having thus slightly, and, I fear, imperfectly pointed out how the blood may be impoverished from defects either in the materials of its formation or in the manner in which these materials are converted into blood, I pass to the remaining and far more extensive causes of impoverishment, where there is undue expenditure of tissue and of blood.

The whole work of the body is effected by oxidation, not in a simple manner by the direct combustion of material contained in the blood, but of that which is stored up in the tissues to which it has been brought by the blood. Setting aside the conversion of carbon compounds and considering only the subject of nitrogenous metabolism, we find that the nitrogenous matters brought by the blood are utilised to repair tissue waste and to aid in the actual production of energy—i.e., mechanical motion and heat. Every molecular change is accompanied by heat production, and mechanical motion appears under different forms in many of the vital acts. Muscular action is the chief source of this expenditure. It is marked by rise in temperature, the separation of carbonic and lactic acids out of proportion to the amount of oxygen consumed, indicating that some highly complex molecule is destroyed, the nitrogenous portion of which is retained by the muscle. Such changes go on, but to a lessened extent, in the muscle during rest. The nutrition of muscle, then, consists in a constant formation of contractile material periodically greatly decomposed, and as this decomposition is accompanied by heat much force is expended. Over-work of muscle does not impoverish the blood so much as might *primâ facie* be expected, and this for several reasons. The circulation is accelerated by muscular activity, and tissue changes go on more rapidly so long as a sufficient amount of oxygen and carbon compounds is supplied to the working muscle; and hypertrophy of a muscle called forth by extra work enables it to utilise more material. This, however, implies an increase in the intake of the blood; and were it not that a limit was placed by the condition of fatigue the blood would be greatly impoverished. As it is, long-continued exhausting physical labour, and its frequent repetition, undoubtedly cause anæmia. I might remark in passing that if any good is to be derived from the extravagant feats of physical endurance at present so popular, it should be by utilising them for physiological inquiry in these directions.

The opposite condition—that of lack of normal muscular activity—is a more prolific cause of blood-impoverishment than excessive action; but its mode of operation is, of course, very different. There is then diminished tissue change, diminished oxidation, and the blood suffers from being imperfectly renewed, and not from being drawn on for extra supply. Conversely, inability for physical exertion, and the readiness with which this is followed by fatigue, are prominent features of the anæmic state, and are readily explained by the lessened power of oxidation.

As regards expenditure in the production of nervous energy there is less certain knowledge than is the case with muscle. The actual chemical changes taking place in a nerve during the passage of a nervous impulse are comparatively insignificant, but those which occur in the central mechanism are probably much greater. The complexity of the construction of a cerebral molecule, for example, is very great, and its activity must, no doubt, depend upon a due supply of oxygen, as in the case of other tissues; and it is probable that for every act initiated by the nerve-cells the energy must be supplied by oxidation changes in these complex molecules. More than this, however, is probably concerned in the question of the influence of the nervous system. Its intimate relations with all parts of the body point to an exercise of control over blood formation as over nutrition and secretion, so that under certain conditions the nervous system may bring about an anæmia other than by the exhaustion of material supplied it by the blood. It is only on such an assumption that the occurrence of a profound, lasting, and even progressive anæmia following great mental shock or emotional disturbance can be explained. I am not prepared to say that this same influence does not operate in the production of anæmia from exhausting mental labour, from anxiety, or from want of sleep. It may be one factor, the other being the disproportionate expenditure of material.

In the act of secretion there is more obvious reason for believing that excessive function entails a loss of material from the blood. The secreting cell not only takes up material and converts it into its peculiar product, but such conversion often demands the destruction of the cell itself. Some secretions are composed of more complex substances than others; and the drain on the blood must be proportionally greater when these glands are too freely exercised. One of the best known instances of a symptomatic anæmia is afforded by such excessive and prolonged activity of the mammary gland, which yields a product rich in all the main elements of the blood. A like instance is afforded by the product of the male generative organs—a product of a peculiarly stable character, and endowed with highly specialised properties. It is plain on mere *à priori* grounds that an excessive production of this secretion must cause undue drain on the blood, and such is a well-recognised fact, although in both these instances the effect on the nervous system as the controller of blood formation must not be entirely lost sight of. Probably it is the same with every other secreting gland, in extent varying with the quality of the secretion. The transition from conditions of excessive discharge of normal products to those of perverted and abnormal discharges is slight. We may comprehend in one view all the abnormal fluxes—from a simple mucous catarrh to an abundant purulent discharge from a mucous tract, where the formed elements of the blood compose a great part of the discharged material. Such outpourings not only impoverish the blood directly, but where, as in the case of the intestine, they involve organs subservient to digestion and assimilation, they of course interfere with the formation of blood; and the rapidity with which a diarrhœa produces anæmia is well known. Such causes of blood impoverishment may lead to other conditions, where either the blood itself or its albuminoid constituents are poured out from the vessels. Of hæmorrhage nothing need be said. Even the monthly loss by the catamenia is represented by an actual fall in the richness of the blood. Inflammatory effusions into serous sacs, when abundant, must necessarily entail anæmia; but I do not know if the degree to which this occurs has been much studied. Quinquad, in three cases of acute pleural effusion, found a marked reduction of hæmoglobin and of the solids of the serum, and also noticed that paracentesis was followed by a further reduction of these constituents. Large inflammatory exudations, such as occur in acute pneumonia, are also accompanied by a fall in these constituents, but, according to this writer (and in that respect the observations of Drs. Baxter and Willcocks coincide), not to a very marked extent, especially when the high degree of pyrexia is taken into account. Passing from simple inflammatory exudations to suppuration, we meet with conditions of drain on the blood too obvious to require illustration.

The anæmia of chronic albuminuria forms another example in this lengthy category. A notable deficiency in red corpuscles has been shown to occur in chronic Bright's disease, and the supervention of dropsy is apparently due to the replacement of albumen by water in the blood.

The relation of malignant growths to the composition of the blood involves a subject complicated by the question of cachexia. Undoubtedly, when malignant disease is of rapid development it must deprive the blood of much nutriment, perverting it to its own ends, and living on the body in a truly parasitic manner. Or if the disease involve organs essential to digestive or nutritive functions, it must obviously indirectly interfere with blood formation. It is said that in cancer the red corpuscles are not only diminished in number, but are smaller in size than the normal, and that the hæmoglobin in cancerous subjects becomes reduced to a very remarkable degree. But that this precedes the development of the disease there is no warrant for saying, or that there is in cancer a cachexia apart from the circumstances of the growth itself, and the additional drain frequently occurring from the ulceration and hæmorrhage of the diseased mass. I have seen cancer arise in the robust and plethoric, and in such subjects it grows with terrible vigour; but it is not, of course, always so, and the problem is to discriminate between an underlying blood-condition and that induced by the malignant growth itself. It seems to be otherwise with regard to tubercle; and among the numerous points in which medicine is indebted to Trousseau is that where he declared the fact of the existence even of marked anæmia in subjects of tubercular tendency before the local manifestations of the diathesis appear. Whether it be that in these individuals the lymphatic system is primarily deranged, and the work of sanguification impaired, or whether we may look upon tubercle as a true blood-disease, I do not know. When, however, tuberculisation is declared other factors come into play to aid in the production of the anæmic state; there is abundant cell-formation and destruction of tissue, whilst prominent among all the influences is *fever*. On its special influence in inducing anæmia I must now say a few words.

The central fact in the febrile process, next to the heightened body temperature, is the increased metamorphosis of the albumen of the body, as shown in the rapid wasting of the tissues and increased elimination of urea. When to this is added the impairment of the digestive and assimilative functions, we get in fever a combination of both the conditions of blood impoverishment. The blood suffers as well as the other tissues; its corpuscles appear to be more rapidly disintegrated, their number is notably diminished, the hæmoglobin is reduced, and the pigment excreted in excess. Consequently, to maintain the increased oxidation the circulation is accelerated and the respiratory changes are more rapid. Wagner says,[1] "without any doubt metamorphosis is increased in fever. This does not occur as a simple and uniform increase of the normal process of metamorphosis, but the process of oxidation of nitrogenous substances is made more active than that of the non-nitrogenous. More especially there occurs a greater destruction of albumen, chiefly indicated by increased excretion of urea, and that in spite of the fact that the conditions for its separation are less favourable in fever because of the diminution in the amount of urine. Even under the most favourable circumstances we find in fever patients an average increase in the excretion of urea amounting to more than double what is thrown out in non-febrile states under otherwise similar conditions. According to a number of investigations, it is the red blood-corpuscles—that is to say, those elements which we know to take up oxygen from the air and serve to transport it to the tissues—which suffer most in fever. If the organism in fever cannot appropriate as much oxygen as in the same dietetic conditions in the non-febrile state, it likewise cannot furnish as much products of oxidation. But as larger quantities of oxygen are used in the formation of a greater amount of urea, it is probable that an excessive formation of other products of combustion (so often asserted) does not take place." The present methods of blood analysis have not wholly substantiated these inferences (Baxter and Willcocks), but as these methods take no cognisance of alterations in the density of the blood, these results can hardly be quoted against the manifest effects which fever produces in its subjects, and the plain evidence of increased tissue metamorphosis afforded by urinary analysis.

I must also enumerate, to complete the list of known causes of anæmia, certain diseases (in many of which fever plays a part) which are specially characterised by alterations in the composition of the blood. Scurvy is an example of such a disease. Arising in defects of diet, it is, as Dr. Ralfe has demonstrated, productive of a diminished alkalinity of the blood, which in its turn leads to corpuscular disintegration, and all the effects following upon this. These effects are probably then largely dependent on the anæmia of the disease, for the changes in the viscera and bloodvessels are similar to those met with in profound anæmia. Quinquad has noted a very marked reduction of hæmoglobin in scurvy. In acute rheumatism anæmia is a prominent symptom from the first, and it is an example of a disease in which the blood is directly influenced. Diminution in corpuscles has been noted both in acute rheumatism and in acute gout. The anæmia induced by the malarial poison is sufficiently accounted for by the degree to which the more important organs concerned in blood formation are influenced by it. The subject has been especially studied by Kelsch, who found in simple intermittent fever a considerable decrease in the number of red corpuscles after each febrile paroxysm, followed by a partial return to the normal—a renovation which was not accomplished owing to the recurrence of the paroxysm, so that the anæmia is maintained and intensified as long as the fever lasts. The subsequent malarial cachexia is marked by a lowering in the number of blood-corpuscles. Quinquad's estimations of hæmoglobin teach the same fact, and, in addition, he remarks upon the considerable diminution in the solid matters of the serum in malarial disease. Lastly, in syphilis we have an animal poison, probably directly affecting the blood, and showing its effect in diminution of the red corpuscles and hæmoglobin.

Amongst mineral poisons lead and mercury are powerful agents in the impoverishment of the blood. Workers in lead are always anæmic, often to an extreme degree. This may be in part due to the direct action of the metal on the blood; but it is at least an open question whether, in view of its action upon the nerve tissues, it does not also operate by impairment of sanguification through disordered innervation. Observations are not wanting to show that there is a considerable diminution in corpuscles and colouring matter in chronic lead poisoning. I have included phosphorus in this category, although its precise mode of action is doubtful; acute poisoning by phosphorus leads to changes which seem related to deprivation of the blood of its oxygen; but whether this is in consequence of a directly noxious effect on the corpuscles or not I cannot say.

Lastly, some forms of anæmia in tropical climates, especially that form known as "Egyptian chlorosis," were explained by the discovery of a blood-making nematoid parasite, the *anchylostomum duodenale*, which may exist in large numbers in the upper part of the alimentary canal, where it is conveyed by the ingestion of impure water. The obscure disease which proved fatal to some of the workers in the St. Gothard tunnel was shown to be due to the presence of this parasite, which "bites its way into the mucous membrane, pierces the submucous cellular tissue, and subsists on the blood. After its removal there remains an ecchymosis, the size of a lentil, the centre of which presents a white spot of the size of a pin's head, with a fine hole. Out of these wounds the blood oozes into the intestinal cavity" (Wagner).

Having thus reviewed the conditions liable to lead to the impoverished state of blood known as anæmia—conditions of defective nutrition and impaired sanguification on the one hand, excessive expenditure and loss of nutritive elements on the other, and certain specific and other poisons, and parasites, there yet remain for consideration certain influences in the individual or in his conditions of life which operate powerfully to the same end. These influences—to which, for want of a better term, the word predisposing is usually given—include the factors of age, sex, heredity, and occupation; and the influence of light, air, and climate. With a brief reference to each of these in turn I shall conclude this portion of my subject.

In the growing organism the process of blood formation is at its height. We have seen how in fœtal life the elements of the blood are developed from the mesoblastic tissues almost indiscriminately. As parts become more specialised this function is limited to cetain special tissues, which are embraced under the term "cytogenic." In infancy and childhood the cytogenic tissues obtain their acme of development, and share with all the nutritive processes in the work of building up the body. The whole organism is thereby modified; it is mobile and plastic; repair and renovation are

[1] Elements of General Pathology (Seguin's Edition), p. 660.

more rapidly effected; tissue change, and therefore oxidation, are increased, the temperature of the body heightened, and circulation and respiration accelerated. I cannot forbear quoting the terse sentences of Dr. Michael Foster as he sums up the nutritive conditions obtaining in the infant organism. He says:[2] "Metabolism is directed to constructive ends. The food taken represents, undoubtedly, so much potential energy; but before that energy can assume a vital mode the food must be converted into tissue; and in such a conversion, morphological and molecular, a large amount of energy must be expended. The metabolic activities of the infant are more pronounced than those of the adult; for the sake, not so much of energies which are spent on the world without, as of energies which are for a while buried in the increasing mass of flesh. Thus the infant requires, over and above the wants of the man, not only an income corresponding to the energy of the flesh actually laid on, but also an income corresponding to the energy used up in making that living sculptured flesh out of the dead amorphous proteids, fats, carbohydrates, and salts, which serve as food." Thus, then, in the growing organism we have not only a greater instability in the nutritive processes, but also a direct source of expenditure in the very fact of growth itself. In consequence of that instability, we find how comparatively slight causative influences may lead to considerable defects in the blood, reducing it below the physiological standard; and in the fact of growth we see how the tissues may demand more nutriment than the blood can supply, and an anæmia special to the period of childhood and adolescence may readily be provoked.

At the other extremity of the cycle of life, when the demands are lessened, when all tissues and organs more slowly perform their functions towards the close of the long years of activity through which they have passed, when all the nutritive processes take place with a sluggishness in contrast to the period of active growth; the blood (no longer required for the purposes of growth or the renewal of tissues) loses in corpuscular richness and in hæmoglobin, so that one feature of the natural decline of life is the presence of slowly deepening anæmia, which in its turn probably aids in the diminution of the vital powers. It is plain that a very slight derangement, either in the direction of intake or that of undue waste, must readily influence and intensify this senile anæmia and marasmus.

Turning now to the contrast afforded by the sexes, which up to the age of puberty advance almost in parallel lines, we find, in the first place, there is a difference in the precise composition of the blood (see Table I.), that of the female being notably less rich in corpuscles and hæmoglobin than that of the male; and although this difference in health is, doubtless, in precise relation to the amount of work called for in each sex, yet, in consequence of it, the female is rendered more liable to anæmia. She is also subjected to influences special to her sexual function. Ovulation and menstruation go on in health with regularity, and the blood loss they entail is readily renovated. But they are most easily influenced by derangements in health and nutrition; and, on the other hand, when diminished or excessive, may be important factors in the production of anæmia. Pregnancy, the puerperal period, and lactation severally subject the female to anæmiating conditions, and the cessation of the menstrual function is often the period at which anæmia is developed.

I have no doubt that heredity plays some part in disposing the organism to anæmia, but it is not easy to give instances. A tendency to anæmia may certainly be transmitted, just as a tendency to hæmorrhage, in hæmophilia.

The other conditions, which I have included under predisposing causes, frequently co-operate. Occupation may involve deprivation of a due amount of light and air, the exposure to heightened temperature, and a want of due amount of sleep. I need hardly particularise them further: they are influences which are almost as much exciting as predisposing causes of anæmia; they stand, at any rate, on the borderland between the two groups in the etiology of the condition.

The influence of climate is well known as favouring the anæmic state, the subjection to prolonged tropical heat having a direct influence over and above that which is due to the inertia called forth by life under such conditions.

In conclusion, it must be borne in mind that any given anæmia may arise from a multiplicity of causes, each of which is sufficient of itself to have induced the state; and in the second place the impoverished blood itself reacts on the organism in such a way as to maintain and intensify the anæmic condition. For all the vital processes are influenced by blood defective in the oxygen-carrying substance—hæmoglobin. Hence the capacity of blood for hæmoglobin must be increased, as well as the removal of the primary cause or causes, if any given anæmia is to be remedied. Metabolism must be quickened, and oxygen supplied for that purpose. I should have hesitated, in this hasty survey of the known causes of anæmia, to take you over ground so familiar if this were all that the subject comprised; were that the case, there would have been no need to discuss the subject at all. But when the category of known causes is exhausted, there remain cases of more or less profound and progressive anæmia, to which hitherto no sufficient explanation has been given. It is the existence of such a class of "idiopathic" cases that has induced me to speak to-day of the factors known to operate in producing the anæmic state, before proceeding to the consideration of that class of diseases to which I shall invite your attention in my next lecture.

[2] Text-book of Physiology, 3rd ed., p. 633.

CASE OF

ANEURISM, FIRST OF ONE FEMORAL ARTERY, THEN OF THE OTHER;

LIGATURE OF BOTH WITH CARBOLISED CATGUT, AND ANTISEPTIC TREATMENT; CURE.

BY RICKMAN J. GODLEE, M.S., F.R.C.S.,

ASSISTANT-SURGEON TO UNIVERSITY COLLEGE HOSPITAL.

AT the present time, when we have been hearing so much of cases in which the application of the catgut ligature to an artery in its continuity has been followed by unsatisfactory consequences, it may be well to place the following on record, which, besides its bearing upon this particular question, is one of very considerable clinical interest. I may preface the account of the case by saying that not only was the progress of the patient after both operations quite satisfactory, but there can be no doubt that both of the arteries to which the ligatures were applied have been completely obliterated at the seat of operation.

A. T——, aged thirty-four, was admitted under my care into University College Hospital on Aug. 27th, 1878. By occupation he was a cab-driver, and had been a great beer-drinker, but had not taken much spirits. He had suffered from gout, but there was no history of rheumatic fever, nor could conclusive evidence of venereal disease of any kind be obtained: he was unconscious of having sustained any injury. For a fortnight previously the patient had noticed a slight catch in the knee and some pulsation, and for nearly a week he had suffered some actual pain. His general condition was not good: he had a bloated appearance, with distended cutaneous veins, a furred tongue, and a tendency to fine tremors of the limbs. He was emphysematous, and had scars of old ulcers on the legs. The apex beat was hardly to be felt, except at the epigastrium; but there was no cardiac murmur, and but slight tendency to arterial disease, as shown in the more superficial arteries of moderate size. In the right popliteal space was an aneurism of considerable size and irregular in shape. The pulsation, which was comparatively superficial, and seemed to indicate that the walls of the aneurism were thin, was most marked two inches above the lower border of the internal condyle, but it extended outwards to the outer border of the limb, and upwards to a line three inches above the crease of the ham. The knee was slightly flexed, and the limb, which lay upon its outer side, was considerably œdematous below this joint, the cutaneous veins being markedly full. The posterior tibial pulse was weaker than that on the opposite side.

At 8.30 P.M. on Aug. 27th the limb was bandaged, and after being flexed at an acute angle, was fixed by means of bandages in this position, some cotton-wool having previously been placed in the ham. Half a drachm of bromide of potassium and half a drachm of tincture of opium were administered. There was considerable pain during the night, and the patient slept very little. The following morning the bandages were loosened, but as no change had occurred in the aneurism, they were reapplied till 4 P.M. on

the 28th, making altogether nineteen hours and a half, when beyond the disappearance of the œdema from below the knee no alteration had taken place. On the afternoon of the 29th I had proposed to ligature the superficial femoral, but when taken into the theatre the patient's condition appeared so critical, his pulse becoming very feeble and his countenance cyanotic, while the tremor previously noted had markedly increased, that it was decided to defer the operation for a time. He was accordingly taken back to bed. A low diet was ordered, and a mixture containing ten grains of iodide of potassium and twenty grains of bromide of potassium was given every three hours. On Sept. 2nd compression was begun with Carte's compressor, and continued for four hours and a half without effect. The patient complained of great pain, so that the treatment could not be continued for a longer time. On Sept. 4th digital compression of the common femoral was practised for twelve hours, the pulsation in the aneurism being completely arrested for by far the greatest part of this time. This again caused the patient almost unbearable pain, though hypodermic injections of morphia were freely administered. On Sept 6th, as the patient's general condition had decidedly improved, and as the means adopted for the cure of the aneurism had proved completely ineffectual, I proceeded to tie the superficial femoral artery in the usual way at the apex of Scarpa's triangle. A catgut ligature kindly given me by Mr. Lister was employed, and strict antiseptic precautions were followed throughout the operation. This was performed at 2 P.M.; at 6 P.M. the patient had a shivering fit, and his temperature rose to 103·6° F., but by 11 P.M. it had fallen to 101·6°; on the 9th it was 100·4°, and after that kept between 99° and 100°, which indeed appeared to be his normal temperature, as it never sank below 99° except on one occasion. There is little to remark about the progress of the case. I employed a horsehair drain, which did not work perfectly, the result being that a little serum collected in the wound, and at one time there was a drop or two of pus. In consequence of this the progress was rather slow, the wound not being completely healed till four weeks after the operation. A slight pulsation was felt in the aneurism from the 11th to the 15th of September, but this completely disappeared, and by the time the patient left the hospital, on Oct. 14th, there was only a firm tumour of the size of a bantam's egg in the popliteal space. There was some tingling pain about the inner condyle, and occasional shooting pain at the inner and lower part of the thigh. No pulsation in the posterior tibial artery or dorsal artery of the foot could be detected.

I saw the patient from time to time after this, and watched the gradual diminution in size of the aneurism, which, when it had reached a certain point, became stationary, a small, hard, non-pulsating tumour remaining in the ham. In the early part of April, 1879, he began to complain of stiffness and coldness in the left calf, and on examination it was found that he had a small circumscribed aneurism in the ham on this side. His general health was now much better than it had been on the previous occasion, he having observed more temperate habits in the meantime. On Feb. 27th the circulation was completely controlled in the limb by means of an elastic bandage, applied over a flannel bandage, above and below the knee, the joint itself remaining uncovered. This was continued from 10.5 A.M. till 11.5 A.M., one-sixth of a grain of morphia having been given subcutaneously. The pain at last became unbearable, and it was impossible to continue the treatment without administering an anæsthetic; the bandage was accordingly taken off after screwing down a Carte's compressor three inches below Poupart's ligament. At 1.45 it was found that the tourniquet had slipped, and the aneurism was pulsating; it was relaxed for a quarter of an hour and then reapplied at 2.5 P.M., and the pressure was continued till 6.10 P.M., when it was finally removed. No alteration in the tumour had taken place. On the 28th a conical shot-bag was applied to the artery, so as almost completely to stop the circulation. The bag was slung from a bar, which passed over the bed, and the position was regulated by the patient himself. Its employment was begun at 10.45 A.M., and was continued almost without intermission till 7 A.M. on the 29th. After the bag had been applied for eleven hours the tumour seemed decidedly harder, and to be pulsating less, but when finally removed but little, if any, change from the original condition could be perceived. It is, of course, highly probable that the pressure was not efficiently applied during the whole of this period, as so much of the regulating of the position of the pad remained in the hands of the patient himself. A good deal of redness and tenderness of the skin was caused by the pressure of the shot-bag. On March 6th it was noted that the aneurism was decidedly larger and softer. At 1.48 the elastic bandage was reapplied without the previous application of the flannel bandage, so as completely to stop all circulation. One-third of a grain of morphia was given hypodermically. At 2.45 the pain had become unbearable, and the bandage was accordingly removed, the shot-bag having been previously applied; but as this was not quite in position at first, it was ascertained that the pulsation in the ham still existed. The pressure was continued efficiently till 10.40 P.M., when it was removed, and the pulsation was found to be less. On the 7th the shot-bag was again used for some hours without benefit.

As no effect was produced upon the tumour, which indeed was obviously increasing in size, I determined to ligature the vessel. This was accordingly done in the usual way, and with strict antiseptic precautions, on March 12th. The healing of the case went on very satisfactorily, and was complete, with the exception of a small superficial patch of granulations a quarter of an inch in diameter, by April 2nd. As in the previous operation, the drain did not act perfectly at first, and therefore the healing was not quite so rapid as might have been expected in an aseptic wound. The temperature reached 101° on the 12th, 14th, and 15th. On the 19th the maximum was 99°, and it did not afterwards exceed this limit. From the 20th to the 22nd very slight expansile pulsation in the aneurism was detected, which after this disappeared.

On May 17th the following note was taken:—Left leg: pulsation felt in femoral, below the seat of ligature, when the limb is extended, and sometimes a little in the popliteal space. A little hardness, in the shape of a stout cord, is felt in the ham, and a little pulsation can be detected apparently in this. There is a weak pulse in the posterior tibial. The nutrition of the limb is good. Some stiffness is complained of in the ham. On the right side no pulsation is felt in any part of the limb below the seat of ligature. The thickening in the popliteal space is decidedly less than when the patient was in hospital. The pain and stiffness are more than in the opposite limb.

On February 16th, 1881, two years and a half after the patient first came under notice, I made a very careful examination of the two limbs, and the following note was taken:—In the left leg (the second operated upon) the femoral artery can be felt pulsating as far as the upper part of the scar of the operation wound. Below this it is imperceptible, and, indeed, the only point at which any pulsation lower down in the limb is to be detected is in a vessel of some size which lies close to the inner hamstrings; the posterior and anterior tibial pulses appear quite deficient. Some occasional and indefinite discomfort is felt below the knee on this side, especially in cold weather; but this appears to be diminishing. On the right side, in the same way, the femoral pulse is not to be felt below the upper part of the scar; and here, again, only one vessel was, after a prolonged search, felt to be pulsating. This accompanies the external popliteal nerve to the head of the fibula, and is smaller and more superficial than that felt on the left side. No discomfort or pain remains in the right limb at all. On neither side is any trace to be discovered of the aneurism, the thickened cords mentioned in previous notes having completely disappeared. He says that in very severe weather his limbs feel a little more cold than was the case before the occurrence of the aneurism; but this is not enough to inconvenience him to any extent. His general health is now excellent.

Those who have watched the treatment of aneurisms by the various methods of compression in vogue, or who have read the published accounts of such cases, cannot fail to be struck with the fact that while in many instances the results are brilliant and in every way satisfactory, it not unfrequently happens that after submitting the patient to a prolonged and painful ordeal he is in no way relieved, if indeed his condition be not materially altered for the worse. For it must be remembered that after consolidation of an aneurism as the result of such treatment, gangrene of the limb is not by any means unknown; and not only so, but it is at least possible that the vessels and the surrounding tissues may have been, as the result of the pressure, placed in a less favourable condition for the application of the ligature than they were previously. The surgeon who has, as the result of experience, complete faith in the efficiency of the antiseptic system to prevent the various dangers which are incidental to the existence of the smallest

open septic wound, and who knows that it is a matter of certainty that the small wound involved in the ligature of the femoral can be kept aseptic, would therefore, I think, hardly hesitate to tie the femoral without much delay in a case of popliteal aneurism if he were quite certain that the ligature employed was in every way trustworthy. Up to the present time this has unfortunately not been possible. We have several cases on record in which the ligature has no doubt yielded too soon, with the result of allowing the artery to become again patent; in some of which it may be presumed that the gut employed had not been sufficiently prepared, but in others it appears that the very best material to be had was made use of. The tests to which Mr. Lister has subjected the ligature, the preparation of which he has recently described, seem to show that it may be thoroughly trusted to withstand the softening effect of the tissues until the obliteration of the vessel has been completed, and therefore I, for one, shall feel little disposed to subject a patient to prolonged attempts at cure by compression. It has recently been suggested by Mr. M'Carthy and Mr. Treves that a certain amount of inflammation round the vessel is essential to the formation of a clot strong enough to withstand the force of the circulation. Cases such as mine, and many others which are on record, appear, in my opinion, to dispose at least of the universality of the truth of this position; and those who would argue in favour of allowing putrefaction to occur in the wound in order to ensure the amount of inflammation which is supposed to be necessary, will do well to bear in mind the following facts:—In the first place the existence of putrefaction is certain to accelerate the softening of the catgut ligature; and in the second place, it has been amply proved by the experience of generations that the inflammatory tissue is by no means always strong enough at the time at which secondary hæmorrhage is likely to occur to prevent the occurrence of this disaster. It is notorious that when hempen or silk ligatures were employed the danger of secondary hæmorrhage was real, and always present, but as far as I know it has never yet followed the application of the catgut when the wound has been kept aseptic to the last. It would seem therefore that even with the old imperfect material, a distinct advance had been made in the direction of safety, the inconvenience of the opening up of the vessel having been substituted for the danger of secondary hæmorrhage; it is surely fair to assume that with the improved means at our disposal, both the inconvenience and the danger will have been done away with, and we may now resort to the ligature with greater confidence than at any previous period in the history of surgery.

Wimpole-street.

THE PATHOGENY AND TREATMENT OF BRONCHOCELE OR GOITRE.

BY EDWARD WOAKES, M.D. LOND.

(Continued from page 450.)

As already stated, the object of conducting the treatment in the present series of cases was to determine whether fluoric acid exercised any curative influence over goitrous diseases. The result—17 recoveries and 3 failures, or 85 per cent. of the former—gives what I think may fairly be considered an affirmative answer to this point. But it will be observed from the details that the treatment extended in most of the cases over a lengthened period of time—time that might not be accorded in other than hospital patients. In endeavouring, therefore, to estimate the position of fluoric acid as an anti-goitrous remedy, I certainly should not regard it for this reason alone, irrespective of its occasional failure, as occupying the position of a specific. It is to be regarded rather as a basis of constitutional treatment, with which iron in anæmic patients may be advantageously combined; while coincidentally with its internal administration recourse may be had to such local proceedings as experience has shown to favour the dispersion of goitre. It is matter of observation that when fluoric acid is adapted to a given case, its effect upon it is often immediate and rapid. As an illustration of this point I may refer to a young man who came under treatment at my out-patient clinic for the first time on Feb. 8th, 1881. He had a fibrous goitre of two years' duration, which was steadily increasing. Laterally it extended from the clavicles to the level of the hyoid bone on each side, while the isthmus was hard and prominent, the girth at this point being 16½ in. He was given half-drachm doses of the acid three times daily. On his next visit, Feb. 15th, just one week, he volunteered the statement that the tumour had gone down half an inch, which on measurement proved to be the case. Perpendicularly the diminution was greater than this, the lobes now reaching only to the level of the cricoid cartilage. In such a case one would be content with the acid treatment. But there are others in which improvement goes on up to a certain point only, the peripheral portions of the tumour disappear, but its centre remains firm and large as ever. Then I should add the plan which originated with Professor Lücke, formerly of Berne and now of Strasbourg, and which has ever since been extensively practised at the Throat Hospital—viz., that of injecting the substance of the tumour with tincture of iodine. After this absorption recommences, and often it only requires to continue the acid, or a second injection may be necessary. The evidence points with certainty to this fact, that when fluoric acid is administered internally, but is insufficient of itself to cure the disease, the number of injections necessary for this purpose is materially diminished, a point not unworthy of notice by those who are nervous on the subject of injecting bronchoceles. On the other hand, some of the cases indicate that fluoric acid alone has proved efficacious, after injections and every other method had failed. From all these considerations it will, I think, be conceded that we have in this drug a valuable adjunct for treating diseases of the thyroid gland.

A brief recapitulation of the points already insisted upon will serve the purpose of indicating in what the *modus operandi* of fluoric acid and its allies consists regarded from a therapeutic point of view. The vessel area of the thyroid gland has become a part of least resistance, as regards the vascular system at large. This implies a fault not so much in the bloodvessels themselves as in the sympathetic ganglia which furnish the nervi vasorum of these thyroid vessels; the power which maintains them in equilibrium is thus to a great extent lost or exhausted. Hence they exhibit a very slight resistance to the blood pressure originating in the heart; they yield, in fact, to the *vis a tergo* of the blood current, and so receive more blood than normally should be the case. My contention is that the fluorine restores the lost contractile function to the impoverished ganglia, either by acting as a physiological spur to their function or, which is equally admissible, by furnishing a deficient element in their composition, one without which the nerve currents generated in them are reduced to *nil*. The supply of the missing element acts like the recharging of an exhausted galvanic cell.

CASE 1.—F. H——, a female, aged twenty, living at Camden-town, has had goitre for two years. In November, 1876, there was a fibrous enlargement of both lobes and isthmus, the right lobe being firmest and largest. The girth of the neck was 15½ in. Till July, 1877, she was treated with iron and iodide of potassium, with very little result. She was now given fifteen minims of fluoric acid (half per cent. dilution); but she almost immediately took typhoid fever. In March, 1878, she was again put on the acid, and in the three months following received altogether nine injections of tincture of iodine into the substance of the tumour. From June, 1878, the treatment was confined solely to the acid internally, the dose being increased gradually to thirty minims. In March, 1879, she was well, the tumour having disappeared. In February, 1880, she remained free from the disease. The period during which the acid was taken was nine months.

CASE 2.—C. P——, a female aged forty-seven, a governess, living at New Cross, presented on June 14th, 1878, a fibrous enlargement of the left lobe of the gland, of the size of a hen's egg, causing her considerable difficulty in swallowing. She began with twenty minims of the dilute acid three times daily on June 14th. On the 21st the swelling was much larger and softer, but she swallowed better; this enlargement is a good sign. On the 29th the dose was increased to thirty minims; on July 5th to forty minims; and on August 2nd to fifty minims. The tumour became softer and smaller gradually, and in November it had quite gone. The time of treatment by acid was six months.

CASE 3.—A. B——, a female, aged seventeen, a needlewoman living at Clerkenwell. She had soft goitre of the

entire gland; girth 14 in. She began the fluoric acid with twenty minims on May 28th; in June thirty minims; in July forty minims; girth was now 13 in. This dose caused flatulence, so she took thirty minims to the end of the year; in January, 1879, fifty minims; in March seventy minims; in June she was well. Duration of treatment about twelve months. She had previously been blistered, and had undergone other treatment without benefit.

CASE 4.—S. S——, a female, aged sixteen, a servant, living near Regent's-park. Disease commenced five years previously when living at Hertford, after suffering two accidents in quick succession. In August, 1877, she presented a goitre which extended nearly to the chin, in parts very firm, in others soft; girth 14½ in. During August and September she was twice blistered, and took iron, iodides, and bromides internally. She had also one injection of tincture of iodine. In October there was no improvement; dimensions as at first; she was given twenty minims of dilute fluoric acid twice a day. At the end of three months the girth was 13 in. In March, 1878, thirty minims; in April, forty minims. In May the girth was 12½ in., and the dose caused some sickness. In July the girth was 12 in. She continued the treatment to the end of the year, by which time the tumour had quite gone. Time, nine months.

CASE 5.—L. S——, aged nineteen, milliner, living at Highbury. She presented in April, 1878, a simple, soft goitre of the entire gland; girth 13 in. There were also several enlarged lymphatic glands on the left sterno-mastoid. The disease had lasted one year. On April 23rd she was given twenty minims of dilute fluoric acid and one grain of sulphate of iron in an ounce of water three times a day. On May 14th the dose was increased to twenty-five minims, and on June 11th to thirty. This was continued till October, when the swelling had disappeared.—Note: Some swelling returned in the thyroid a month from this date after singing, but rapidly subsided. This fact bears on the foregoing remarks respecting the causes which bring about enlargement of the thyroid. Time, six months.

CASE 6.—M. P——, aged sixteen, a nursemaid, living at Westbourne-park. She presented a simple, soft goitre of the entire organ, causing considerable dyspnœa. It had existed one year and a half; girth 13¾ in. On Sept. 4th, 1877, she was given fifteen minims of dilute fluoric acid. On Sept. 25th she breathed more comfortably, but had some headache. On Oct. 30th the tumour was receding, and on Nov. 13th there was marked diminution. Medicine caused sickness; to take half the dose. On Dec. 11th she was cured. Time under treatment, six months.

CASE 7.—H. F——, aged fourteen, clerk, living at Camberwell; simple soft goitre. Was under a colleague from November, 1877, till April, 1878. He was transferred, for his own convenience, to the evening clinic. At this latter date the girth was 14 in., and the tumour reached the upper margin of the thyroid cartilage. On April 8th, 1878, began with thirty minims of dilute fluoric acid; April 30th, forty minims; May, fifty minims. The girth was now reduced to 12½ in. July, sixty minims. In September the disease remained stationary; the acid was discontinued, and he was directed to rub in red iodide of mercury ointment. This was withdrawn after a month's use, no effect being produced on what remained of the swelling. On Nov. 5th recommenced with thirty minims of fluoric acid; December, fifty minims. In 1879 there was marked improvement, especially in the perpendicular diminution. He continued the acid till June, by which time the gland was reduced to normal. The period during which the acid was taken was thirteen months.

CASE 8.—C. W——, aged twenty-four, female, married, living in Long-acre; duration of disease six months. On June 7th, 1878, a tumour was presented in right lobe about the size of a walnut, and painful. Ordered twenty-five minims of dilute fluoric acid three times a day. On June 21st the tumour was smaller and free from pain. Given thirty minims of fluoric acid. On July 16th the tumour was still smaller. After this date the patient did not attend again. Practically cured; time six weeks.

(To be concluded.)

AT Dorking several horses have been poisoned by eating the leaves of the yew-tree. The toxic character of the leaves of the Taxus baccata should by this time be well known.

BLOOD-CASTS WITHIN THE CAVITY OF THE UTERUS AS A CAUSE OF UTERINE HÆMORRHAGE.

BY MATTHEW J. RAE, M.D.,
PHYSICIAN, BLACKBURN AND EAST LANCASHIRE INFIRMARY.

HÆMORRHAGE from the uterus, unconnected with pregnancy, is often very embarrassing to the medical practitioner on account of the frequency, extent, and persistence of the discharge, and its resistance to treatment apparently the most appropriate to the case. There are probably no diseases in which a thorough knowledge of the pathological condition of the part affected is more necessary to the practitioner than in those affecting the uterus and its appendages. Without such knowledge it is impossible either to have an exact idea of the state of the organ and the causes operating in the initiation or continuance of its disorders, or to devise the medical and surgical means necessary to remedy the existing defects and promote the return of the uterus to its healthy and normal condition. Systematic writers on the diseases of women, in their enumeration of the causes of hæmorrhage from the unimpregnated uterus, do not allude to blood-casts contained within the uterine cavity as a cause of it. Graily Hewitt is the only modern author, so far as I know, who makes mention of it, and only in a cursory way as a rare occurrence. Dr. Ashwell, in his valuable work on Diseases of Women, merely alludes to it as having occurred in one of his patients, a lady at the climacteric period, who suffered from congestive menorrhagia. He does not connect the protracted passive hæmorrhage with the blood-casts. There was scarcely any pain attending the attack, at least none requiring an anodyne to allay it. From the fact of a blood-cast as a cause of uterine hæmorrhage being so seldom recorded in works on uterine diseases, one might conclude that it was either a very rare occurrence or that it had been overlooked. I am inclined to think that it is not so rare, and that its presence has been often unrecognised, and the accompanying hæmorrhage attributed to some other local or constitutional cause.

The uterus is very intolerant of any foreign substance within its interior. A blood-cast generally excites severe uterine contractions, causing violent paroxysms of pain in the hypogastric region, of an expulsive character, and which show a certain periodicity in their recurrence. They resemble labour pains, or those of inflammation or severe spasmodic disorder. With the accession of a paroxysm of pain there is increased hæmorrhage. This state may continue for a considerable time, and probably lead the medical attendant to form various conjectures as to the exact nature of the case, thinking it may be some morbid growth attached to the inner surface of the uterus, an abortion, or even malignant disease of the uterus itself in its primary state. After the expulsion of the cast or blood-clot the violence of the pains subsides; but the hæmorrhage may go on, in a slighter degree, for some time afterwards. It may even continue, like the passive hæmorrhage in congestive menorrhagia, over one or two monthly periods, which renew its force and increase the hyperæmic condition of the already congested uterus. On digital examination the uterus feels more or less enlarged, and is tender and painful on pressure, frequently more so on one side than on the other. There is tenderness to the touch above the pubes, and generally also over one or other ovarian region. The speculum shows the os uteri swollen and patulous, with blood oozing from it. The blood-cast under consideration does not include that sometimes met with in menorrhagia or abortion, and it is probably formed somewhat in the following manner:—The subject of it during a catamenial period, when the uterus is in full functional activity, receives suddenly a severe mental or physical shock, which at once arrests the discharge, and paralyses as it were the uterus. After a time the effects of the shock pass off, and the uterus recovering its power a little, a slow oozing of blood takes place into its cavity. This gradually coagulates, and the coagulum is moulded to the form of the interior of the uterus. When the clot is expelled, it is found to be more or less an exact model of the uterine cavity, is smooth on the surface, and of varying degree of firmness, of a reddish and sometimes of an ashy-grey colour.

The best mode of treatment is first to remove the

blood-cast, and afterwards to check the hæmorrhage, and relieve the congestion of the uterus. With this view, ergot in full and repeated doses should be given along with ipecacuanha, sedative solution of opium, or belladonna. Should there be great irritability of the stomach, a hypodermic solution of ergotin and morphia, or atropia, may be used instead. After the expulsion of the clot, ergot in small doses should be continued for some time, and combined with belladonna or cannabis indica and cinnamon, or the tincture of actæa racemosa instead of the ergot, if the constitution of the patient is rheumatic. The ergot checks the hæmorrhage by exciting uterine contractions; but it lessens it also by its constringent effect on the capillaries, and thus tends to relieve the uterine congestion.

It is not always an easy matter to effect the cure of a highly congested uterus; this is partly owing to its position and partly to the peculiarity of its blood-supply. Some authorities recommend, in such cases, scarification of the os or the application of leeches to it. This plan of treatment does not seem to me at all rational. It is surely better to endeavour to determine the flow of blood from than to a congested organ. In active hyperæmia of the brain, or inflammation of its coverings, leeches are applied with effect behind the ears, or the cupping glasses to the nape of the neck or between the shoulders. On the same principle I think leeches should be applied to the labia, above the pubes, or over the insertion of the broad ligament of the uterus, as advised by Dr. J. Whitehead and others, or over the ovarian region or the sacrum, if these parts are the seat of pain.

Should there be great fulness of the hæmorrhoidal vessels or hepatic congestion, much advantage will be obtained by leeching round the anus. The extent of the hæmorrhage does not contra-indicate further depletion by means of leeches or cupping. Their judicious employment will be found of great service, along with appropriate remedies, both in checking the hæmorrhage and in restoring the congested uterus to its normal condition. Plugging the vagina will hardly ever be needed in these cases.

It may be necessary to give along with ergot, or without it, tannin, gallic acid, one or other of the mineral acids, or some astringent preparation of iron — the perchloride, pernitrate, tincture or sulphate with or without salines, combined according to the exigencies of the case or the predilections of the practitioner. With the internal exhibition of medicine, the frequent use of astringent and sedative injections per vaginam should be had recourse to. The skin and state of the kidneys demand attention, and the bowels must be kept open, as constipation tends to produce and maintain uterine congestion. For the hypogastric pain nothing answers better than either the compound chloroform and aconite liniment, or mercury ointment with extract of belladonna, applied over the affected part.

The patient ought to be kept in the horizontal position, and during the day to recline on a couch so soon as her condition will admit of her safe removal from bed. A regulated diet should be enforced, and all strong wines and spirits prohibited, unless there is great exhaustion, when small quantities of them may be cautiously given. In some extreme cases, where there is danger of fatal collapse setting in, a large quantity of these stimulants may be absolutely needed. But in the ordinary hæmorrhage from any form of congestion of the uterus my experience is that they are not required, and, if given, do harm by keeping up the hyperæmic state of the uterus. Instead of the heavy wines and spirits, Bordeaux or similar light wines may be allowed; they assist digestion and are refreshing, tonic, and slightly astringent.

By the employment of the means already indicated convalescence will be gradually established; and afterwards, by the proper use of alteratives and tonics (mineral and vegetable, both nervine and general), the cure will be effected and the general health re-established, which may be hastened by change of air and a course of chalybeate or other mineral waters.

Blackburn.

CHILDREN'S HOSPITAL, BRISTOL. — The annual meeting of this charity was held on the 19th inst. The report stated that of the 399 little patients admitted during the past year, 212 were restored to their friends cured, 128 were benefited, and 11 died. A new site for the hospital has been secured, and the committee are waiting hopefully for the funds necessary to enable them to construct a suitable building thereon.

OBSERVATIONS ON CASES OF

PNEUMONIA TREATED IN THE DIVISIONAL FIELD HOSPITAL, CABUL, 1879-80.

BY J. MORRIS, M.D.,
SURGEON, ARMY MEDICAL DEPARTMENT.

DURING the late campaign in Afghanistan thirty-five cases of pneumonia were under my care at Cabul, all of which belonged to a single Highland regiment. Disease in the greater number of cases was induced by overwork, combined with exposure to severe cold and want of sleep. A large proportion of cases was admitted during the first five days of January, 1880, partly due to reaction after the excitement of the siege. Several of the cases must have contracted the disease on New Year's eve, which is a great festival in Highland regiments. The barrack-rooms in Sherpur were very cold, being 60 ft. by 16 ft.; a small fire at each end had very little effect on the general temperature of the room. The floors were constantly damp, water being found about three feet from the surface. There was no attempt at ventilation. In eighteen cases the right lung was affected; in ten, the left; the remaining seven had both lungs implicated. Mortality, eleven, or 31·4 per cent. Double pneumonia, four fatal out of seven, or 57·14 per cent. Average duration of cases, eight to ten days before convalescence set in; average duration of fatal cases, 5·1 days. In many cases the disease was complicated with pleurisy, in one with remittent fever, and in three symptoms of meningeal inflammation were present for some time before death. Where death took place, it was usually the result of apnœa, the patients presenting the bluish appearance characteristic of non-aeration of blood. The disease was generally of the catarrhal or diffuse character. In four cases, where a single lobe only was affected, resolution occurred on the third or fourth day. In the earliest stage the treatment was tartrate of antimony in doses of a quarter of a grain every three hours, accompanied by large doses of potash, to render the sputa less viscid. As soon as the sputa could be brought up easily, carbonate of ammonia was substituted for the alkaline mixture, the antimony being still continued. As the disease was in the majority of cases of an extremely asthenic type, stimulants were exhibited at an early stage, gradually increased as needed. Sinapisms were applied daily over the lung affected. When dyspnœa became excessive, dry cupping over the front of the chest usually gave great relief.

I may remark, in conclusion, that the patients in the Divisional Hospital were supplied with every comfort in the way of food, wine, &c. The excessive severity of the weather was a large factor in causing the high rate of mortality. The thermometer frequently marked 25° to 30° of frost. I have seen it mark 20° F. for several successive days at 10 A.M. It can therefore be easily understood how impossible it was to keep up an equable temperature in wards hastily fitted up, with doors and windows fitting imperfectly, and little or no drainage.

SYMPTOMS OF CANTHARIDES POISONING DURING ITS INTERNAL ADMINISTRATION.

BY T. F. CLARKE, M.R.C.S. ENG., &c.

THE two following cases, exhibiting symptoms of poisoning by cantharides during the later treatment of gonorrhœa, may be of interest on account of the favourable result in each case.

I may preface my remarks by stating that in nearly every case of gonorrhœa for the primary symptoms—e.g., scalding, chordee, &c., with thick discharge,—I prescribe saline medicines and tepid-water injections. When the discharge becomes thinner, and all active inflammation has abated, I prescribe iron and cantharides internally (tincture of the perchloride of iron and tincture of cantharides, of each five minims, three times a day), and an injection of sulphate of zinc (two grains to the ounce). Such was the course followed in the present instances.

In the first case my patient had been taking the cantha-

rides mixture for five days, at the end of which time he was virtually cured. A week after the discontinuance of the medicine I was summoned to him for violent pain over the bladder, and this was accompanied on the following day with strangury. These symptoms, at first very severe, passed off at the end of about four days, during which time I gave him nitric ether and hyoscyamus internally, and ordered hot baths whenever the strangury came on.

In the second case the patient, after taking two doses only of the cantharides mixture, had some of the symptoms of poisoning—viz., frequent desire to pass urine, burning pain during micturition, which was very difficult, and always accompanied towards the end of the process by a few drops of blood. I ordered him to take only half the dose, but these directions were not followed, and he continued with the full dose, the symptoms, nevertheless, rapidly abating.

In each case every trace of the gonorrhœa was removed, and as soon as the active symptoms produced by the cantharides passed off, the patient felt as well as ever, and had not the slightest discomfort in the urinary organs. Why these symptoms of cantharides poisoning should have presented themselves—for I frequently administer the drug in much larger doses, and without any untoward symptom—I am at a loss to understand. The delay of the symptoms in the second case may, I think, be explained by the supposition that the drug became stored up in the kidneys, and that after a short time its cumulative action gave rise to the poisoning symptoms.

Somerset East, Cape Colony.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

WESTMINSTER HOSPITAL.

ANEURISM OF ASCENDING AORTA OPENING INTO A FALSE ANEURISM BETWEEN THE ASCENDING AORTA AND STERNUM; APPARENT IMPROVEMENT UNDER LARGE DOSES OF IODIDE OF POTASSIUM; DEATH.

(Under the care of Dr. STURGES.)

FOR the notes of the following case we are indebted to Dr. W. Gristock, medical registrar.

E. D——, aged fifty-five, a stableman, was admitted on Sept. 28th, 1880. He had previously drunk a good deal of rum; had rheumatism once several years before; no history of syphilis; had been much exposed to the weather, and had often had insufficient nourishment. He was in the hospital first in May, 1877, with evident aneurism of the aorta, with distinct pulsating bulging in the second right intercostal space. Though he had since then been in different hospitals over and over again, he had been able to do a little light work at times. The last time he was in Westminster Hospital was in 1878. The signs of aneurism were most marked, but under large doses of iodide of potassium and rest, both the symptoms and physical signs subsided very considerably, the tumour becoming apparently solid. During the summer of 1880 he did light work and lived badly. He caught cold a month before admission, and became much worse. He had much aching pain in the right axilla and down the right arm, and his hand felt numb. He had also some pain and numbness in the left arm, which was never previously affected. He had occasional dysphagia for liquids, some dyspnœa—"a choking sensation." During the week before admission pain in the back came on. The appetite was good, the bowels were rather constipated, but there was no sickness.

On admission there was orthopnœa, with especial difficulty in lying on the left side. There was slight working of the extraordinary inspiratory muscles, stridulous breathing, and aneurismal cough. Pain was complained of in the back between the shoulder-blades, and there was dysphagia. The heart's apex beat was two inches and a half below, and an inch outside the nipple in the sixth space. There was visible and distinctly expansile pulsation to the right of the sternum reaching from the lower border of the second rib to the upper border of the fourth rib. Dulness extended from the first space to the fifth rib, reaching two inches and a half to the right of the sternum, and slightly across the sternum. The right margin of the sternum was tilted up. There was no apex murmur, but a double murmur was heard over the tumour. There was a distinct thrill in both carotids; no particular enlargement of the superficial veins of the chest was discernible, but the jugulars were prominent, especially the right, and the veins of the left arm were more prominent than those of the right. There was no pulsation in the back. Hollow respiratory sounds were audible over the root of the right lung, as if from pressure, and there were a few moist râles.

By Oct. 5th the patient was easier, and slept fairly well. A fortnight later, after cold, foggy weather, the dyspnœa had increased, and also the dysphagia, and the patient's sleep was very disturbed. The heart's impulse became very indistinct, probably by becoming covered by lung. On Oct. 16th the pulsation was distinct at two points to the right of the sternum, as if there were two centres of pulsation. The pain in the back became more severe, and the patient also complained of pain in the right side of his throat, increased by swallowing. The bowels were also very confined; the pain was relieved by ice, though unaffected by fomentations. By the end of November the pain was much worse, not being so much relieved by ice. The dysphagia varied at different times, but there was a good deal of cough, which caused a "tearing pain." By the beginning of December there was acute pain in swallowing, with symptoms of pressure on the œsophagus. Orthopnœa increased towards the end. The temperature, when taken, was about normal or subnormal throughout till Nov. 30th, when the patient had a rigor, after which the temperature was febrile: 102·6° on the evening of Nov. 30th; 100° to 101° afterwards; pulse 96 to 100. The treatment consisted of iodide of potassium, in twenty grain doses, with bromide of potassium and chloroform, three times daily, from Oct. 13th to Nov. 5th, when it was omitted for a few days, then resumed. After Nov. 30th twenty grains of iodide of potassium, simply in an ounce of water, were taken three times a day. Besides this, expectorant mixtures and sedatives were required, and frequent purgatives.

Necropsy (abstracted from the notes of Dr. HEBB, *the pathologist) nineteen hours after death.*—Body warm; rigor mortis well marked; an elastic tumour, about the size of a florin, in third right interspace, immediately adjacent to sternum; dulness on both sides in front from lower border of third rib downwards; the sac of the aneurism intimately adherent to sternum over an area of about two inches and a half in diameter; the veins at the root of the neck were much dilated and gorged with blood. The thoracic viscera were removed *en masse*. There were slight adhesions at left apex and anterior surface of right lung; lungs gorged with frothy serum, but otherwise normal. The pericardium was distended with clear yellow serous fluid. The heart was enlarged as a whole, mainly owing to dilatation of the right cavities, especially the auricle, but there was also slight hypertrophy of the left side. The right auricle was choked with whitish-yellow clot, and there was yellow clot in the other cavities. Aortic valves atheromatous, but competent; the other valves were normal, but the tricuspid orifice was dilated. Aorta atheromatous throughout, and ascending and transverse portions dilated enough to admit the closed fist. The dilated part bulged chiefly to the right. There was an opening about the size of a shilling in the anterior wall of the ascending part. This opening communicated with a sac lying between the aorta and the sternum, and was adherent to the latter. The anterior and lateral portions of this sac were lined by laminated clot, the external part of which (about a quarter of an inch in thickness) was tough and evidently old. The more internal layers were softer. The posterior wall of the sac was formed by the aorta. It was smooth, yellow, and not covered by clot. The fourth dorsal vertebra was eroded, rough, and of purplish colour on its anterior aspect; and the sternum adjacent to the anterior sac was injected, purplish, swollen, and spongy. There were several dilatations of the abdominal aorta, the largest being just below the bifurcation on the right common iliac artery. There was another aneurism of the superior mesenteric artery, three inches in length and nearly one in diameter.

The coats were rough from atheroma, and the sac contained black clot. The laryngeal cartilages were ossified; cords normal. No apparent pressure on the trachea. The liver weighed seventy-four ounces, dark purple, but tissue normal. The spleen weighed nine ounces, and was adherent to the diaphragm. The right supra-renal body was adherent to the liver. The kidneys weighed five and five and a half ounces respectively, capsules adherent, granular surface, much diminished cortex; tissue congested.

Remarks.—This case is interesting as regards the apparent effect of iodide of potassium. During the patient's last stay but one in the hospital in August, 1879, under large doses of iodide of potassium, combined with rest and good food, he showed material improvement in general symptoms, while, at the same time, the pulsation and prominence of the tumour subsided. The iodide had no such effect in the last illness, and the results of the post-mortem examination showed a condition of the parts in which the tempory improvement could be easily accounted for without any special action of the iodide.

MONTGOMERYSHIRE INFIRMARY.

CASE OF DISLOCATION OF THIGH, WITH PERSISTENT LENGTHENING OF LIMB AFTER REDUCTION.

(Under the care of Dr. PRATT.)

J. P——, carter, aged thirty-five, was admitted on the 13th November, 1880. On examination he was found suffering from dislocation of right thigh. According to the man's own account he was knocked down by his horse in the street, and being picked up was found unable to stand, and was consequently carried to the infirmary. The dislocation was easily made out. There was inversion of the foot, with very slight shortening, pointing of the right great toe over the ball of left great toe, and, as the patient was by no means stout, the head of the femur could be felt in its new position, lying deep in the sciatic notch, almost upon the spine of the ischium. The man was at once put under chloroform, and upon manipulation the head of the bone glided below the acetabulum into the thyroid foramen. Thence it was easily dislodged, when it went back to its old position. The flexion upon the abdomen was now made more complete than at first, and whilst the limb was being everted and extended, the head was slightly lifted up, when it went into the cotyloid cavity with an audible snap, and the limb was easily placed alongside the other. But now the limb was found to be half an inch longer than its fellow. Nevertheless it was all right in the acetabulum. What was the cause of this lengthening? Was it a quantity of effused blood and serum into the socket, causing the head to protrude, or was it owing to paralysis of the muscles? The latter was thought to be the right cause, and upon its disappearance the limb would no doubt be the same length as the other. The knees were accordingly bound together, and the patient left comfortable in bed. On recovering consciousness he professed to feel quite right, but upon being questioned declared that as far as he knew his two lower limbs were always of the same length. In a few days much discolouration appeared upon the pelvis and thigh, proving that much blood had been extravasated. This gradually went away in a fortnight, and perfect movement of the thigh in all directions was recovered, but still the lengthening of half an inch persisted. In the third week he was up, and walking about with a slight limp. He went out and returned to his old work. He was seen about a month afterwards, when he declared that he walked as well as ever. He knew no difference between his walking now and what it was before the accident. He was taken into the infirmary and measured, when the injured limb was found still to be nearly half an inch too long. The only conclusion that could be now arrived at was that here was a case of congenital difference in length between the two limbs. It is worth recording, on account of its rarity and on account of its early puzzling character, which raised a doubt whether the dislocation had been properly reduced.

BEQUESTS AND DONATIONS TO MEDICAL CHARITIES. Mr. Robert Ross, late of Glasgow, bequeathed £1000 to the hospital at Dingwall, erected in commemoration of his friend and kinsman, Dr. Wm. Ross.

Medical Societies.

ROYAL MEDICAL & CHIRURGICAL SOCIETY.

Innominate Aneurism treated by Simultaneous Distal Ligature of the Carotid and Subclavian Arteries, with remarks on the behaviour of a Tendon Ligature.

THE ordinary meeting of this Society was held on the 22nd inst., Dr. Barclay, President, in the chair. One paper occupied the evening. It was by Mr. Dent, of St. George's Hospital, and dealt with a subject which has been before the Society twice this session—the question of animal ligatures. An interesting discussion arose, in which two points were raised—viz., as to the efficacy of such ligatures in occluding the artery, and as to the precise nature of the "organisation" of the ligature.

A paper was read on a "Case of Innominate Aneurism treated by simultaneous distal ligature of the carotid and subclavian arteries, with remarks on the behaviour of a tendon ligature," by Mr. C. T. DENT. The chief object of this paper is to describe the changes observed in an artery tied with a tendon ligature. The parts were examined ten days after death. The history of the case was as follows:—S. L——, an engineer, aged thirty-seven, was admitted with an aneurism of the innominate artery, the first symptoms of which had been noticed about twelve months previously. He improved at first under rest and iodide of potassium, but then as the growth increased the carotid and subclavian arteries were ligatured subcutaneously by Mr. Pollock. For the carotid artery catgut was employed as well as the tendon ligature; the subclavian was secured with a flat tendon ligature only. Both arteries were healthy. The aneurism improved, but the patient had at times very severe attacks of dyspnœa, and died ten days after the operation. A large ulcerated opening was found in the trachea, which did not communicate with the cavity of the aneurism. The carotid artery was dissected out and examined; the following points were observed:—A very moderate amount of lymph was effused about the tied artery, though sufficient to bury the knot of the ligature. Well-formed clots were found in the proximal and distal ends of the completely obliterated vessel. No trace of the catgut ligature could be found. Much of the tendon ligature, where not in contact with the artery, was unaltered. The external coat of the artery was not ulcerated. This the author ascribes partly to the fact that tendon, like other animal ligatures, is capable of slight softening and swelling, and partly to the fact that new bloodvessels are early developed in parts lying close to the artery. The inner coats of the artery were ruptured. The tendon ligature, in many of the sections, was in most close connexion with the artery, and in these places was infiltrated with small round granulated cells, which in places split up the fibrous material into longitudinal bands. Some of the cells seem to be more elongated than others. In connexion with these cells, and formed by them, were seen new bloodvessels. Here and there it appeared possible in the sections to trace bloodvessels passing across the line of connexion, extending into the artery on the one hand, and into the tendon on the other. In conclusion, the author states that though he did not share in the objection urged against catgut ligature, still it seemed that tendon might furnish an animal material which would require less preparation than the carbolic or chromic catgut ligature, and which would probably be more constant in its behaviour.—Mr. BRYANT said the question of the use of flat ligatures involved the important principle whether it were necessary for permanent occlusion that the inner and middle coats should be divided, the point established by Dr. Jones; and he had himself some years ago come to the same conclusion that permanent occlusion could only be thus obtained. The flat ligature, which only compressed the vessel, would cause simply a temporary occlusion, long enough in some cases to allow of coagulation in an aneurism, but not in the other more difficult cases where ligature had to be resorted to. He compared the action of the flat ligature to that of acupressure, which had been almost abandoned because (in the case of severed arteries) it was frequently followed by secondary hæmorrhage, the vessel not being occluded long enough to allow of permanent clotting. Hence those cases

of aneurism which could not be cured by other means of compression were not suitable for the application of the flat ligature. A similar mode of temporary obstruction was devised by Mr. Dix of Hull some years ago, consisting in a wire loop placed round the artery and secured over a piece of cork. He thought much evidence was required before the fact of organisation of an animal ligature could be admitted. He had examined six or seven vessels some weeks after ligature by carbolised or non-carbolised catgut, and although he had seen new vessels around the material he could not believe they had been formed at its expense.—Mr. SAVORY thought it strange if dead matter could be converted directly into living tissue. Several years ago it had been shown that masses of dead tissue introduced into the living tissues became infiltrated with leucocytes; but the inference was that the leucocytes had proceeded from the irritated living tissues, and had absorbed the dead material. In Mr. Dent's case new vessels appear to have formed in the dead substances. The same criticism was applicable to the subject of organisation of blood-clot about which so much had been heard lately. John Hunter studied it, and some of his specimens were in the College of Surgeons' Museum; but in his cases he dealt with living and not dead clots. It was different in the case of large masses of blood-clot in wounds, masses which must be inert and act as foreign matter; which could not organise, but which might be replaced by new tissue proceeding from the living parts around. If an animal ligature could organise it would be important to know from what source it was prepared, and whether it was old or recent.—Mr. HOLMES, from his own limited experience, had arrived at a different conclusion about the efficacy of animal ligatures to that of Mr. Bryant. He fancied Mr. Barwell had slightly exaggerated the difference in the action of a ligature of flat shape as compared with a round one; for he (Mr. Holmes) had been able on the dead subject to divide the internal and middle coats partially or completely by means of the flat ligature when tied sharply. In the two cases in which he had tried Mr. Barwell's ox-aorta ligature the vessel was permanently occluded, one was a case where he had tied the iliac for rapidly enlarging iliac aneurism with good result; the patient was long under observation (requiring two amputations before his discharge), but the aneurism remained perfectly occluded. In another case, where the patient died in consequence of a debauch two weeks after operation, the ligature was found firmly attached to the artery, which was quite closed. In a third case, where two arteries had been tied, they were found occluded by a diaphragm, as in Mr. Treves's case, the ligatures having disappeared. The evidence, so far as it goes, is in favour of the permanence of these ligatures, and that an artery may be safely occluded whether the material used be oxen aorta or tendon. It had been explained that the ligatures did not themselves become organised, but that they disappeared, and were replaced by a ring of fibrous tissue. That such a replacement was not peculiar to healing under antiseptics was shown by this case of Mr. Pollock's and Mr. Dent's, where no antiseptics were used. It seems that these animal ligatures may be invaded by leucocytes and caused to disappear, new tissue taking their place; and this is now allowed by Professor Lister to be what is meant by "organisation" of the ligatures. So also in the case of blood-clot, the actual organising elements and new vessels being supplied from the surrounding tissues, the walls of the arteries, &c., surrounding the clot. It is quite possible that an animal ligature may excite this formative influence, and its results could not be compared with the effect produced by acupressure.—Mr. BARWELL was not sure that inert matter would not take on vital properties again, and thought that skin-grafting was an instance in point. In a recent case of a large burn, where the "grafts" did not take on the granulating surface, he had found that minute portions of the inner coat of the ox's aorta placed on the surface became converted into a distinct epidermis, others of them melting down into pus. He reminded Mr. Bryant that at the last meeting of the Society he had recorded twelve cases in which perfect occlusion had followed the use of the oxen ligature, and had been able to show the specimens from two of these cases; so that the flat ligature in no way resembled acupressure in its effects. The question as to the need for the division of the inner and middle coats was different now than when Dr. Jones wrote, for at that time ligatures were used which subsequently came away by ulcerating through the outer coats. Now, however, we have ligatures which can be left on the vessels, and which do close arteries permanently. It was essential that the animal ligature, whether tendon or not, should be used first, or should have been dried when fresh; for if putrefaction take place in it its characters are altered and its efficacy impaired.—Dr. B. O'CONNOR said that a short time ago he examined microscopically a mass of lymph lodged at the inner end of a drainage-tube, which had been removed by Mr. Lister. This lymph, which was not in contact with living tissue, contained distinctly small vascular branches. In reply to Mr. Page, he added that the drainage-tube had been *in situ* about four days.—Mr. DENT, in reply, said that the discussion showed that questions were still unsettled which had been thought to be determined by Dr. Jones. He mentioned that in one of Dr. Jones's experiments a septum was formed in the artery precisely like that lately described by Mr. Treves in a vessel tied by the carbolised catgut ligature. In the present case there was microscopical evidence that the inner coat had been ruptured, and that the artery was permanently occluded. In the subclavian artery, where only a tendon ligature was applied, the clots were not so large and well-formed as in the carotid, where two ligatures, one tendon and the other catgut, had been used. As to "organisation," one of the specimens showed vascularising lymph between the two occluded ends of the artery, at a distance from the tendon ligature; and he believed the view taken by Mr. Savory and Mr. Holmes was probably the true one. Mr. Stirling, who had brought these kangaroo tendon ligatures from Australia, had selected them because of the readiness with which they were prepared. Ligatures of whale tendon had also been suggested. Mr. Dent had used them as sutures, and found them too thin and too readily dissolved in the tissues. There was no reason why the same material should not be used as a round rather than a flat ligature; the great advantage claimed for it over catgut being the time it remains unabsorbed.

The Society then adjourned.

MEDICAL SOCIETY OF LONDON.

President's Address.—Pseudo-hypertrophic Paralysis.

AT the meeting on the 14th instant the chair was taken for the first time by the newly-elected President, Dr. BROADBENT, who delivered an opening address, in the course of which he recommended the Fellows to be ever jealous for the welfare and reputation of the Medical Society, and remarked that if, by any chance, the Society should cease to exist, it would become a positive necessity that another society, formed on similar lines, should at once be set on foot. He mentioned that the objects of the Society were general, and they therefore required not only the experience of the hospital physicians and surgeons, but also that of the general practitioner, who was here enabled to bring forward each week notifications of the morbid processes met with in his practice, and relate them to the Fellows, details which gentlemen of the former class were quite unable to supply. He said—"There is a want of opinion on all subjects from all professional sources, and such a want this Society supplies. Such reports as are received must, of necessity, influence both our views and our practice. Moreover it is the duty of the seniors to place the results of their experience before the juniors, and it is the privilege of juniors to hear and derive profit from them. The present time is the seed time for the younger practitioner; a thought planted in the brain, flowers and bears fruit almost unconsciously." He invited Fellows to bring forward communications for the advancement of medical science.

Dr. DOWSE then exhibited a patient suffering from Hypertrophic Paralysis. The father and mother were both healthy; the patient, a boy of eleven, was a delicate, sickly-looking lad, one of five children, three of whom had died of bronchitis. The mother stated that when a child the boy was always backward in getting about, fairly intelligent, but weak about the loins, and not able to walk like other children; she also noticed his calves were harder and larger than they should be, whilst the other muscles of the body were wasting away. Dr. Dowse drew attention to the history of this disease and to its pathology, observing

that the following points were essential to diagnosis:—First, peculiar gait of the patient both in walking and standing, the hip and lordosal spine being more or less fixed and erect, the boy walking upon the toes owing to the contraction of the Achilles tendon; secondly, the enlarged and hardened condition of the muscles of the calves; thirdly, the instability of the normal equilibrium of the body; and, fourthly, the peculiar way in which the lad raises the body from the prone to the erect position by placing the hands upon the knees and thighs, progressing from below upwards.

Dr. RADCLIFFE CROCKER showed a case of Pseudo-hypertrophic Paralysis, which had been under his care at the East London Hospital for Children from within three months of the noticed commencement of the disease until the present time—a period of eleven months. The patient was a boy aged seven years and a half, in whom the disease commenced at the age of six years and nine months. When first seen on July 31st, 1880, he could get up from the floor as readily as a healthy boy, but he was always falling down, mostly forwards. He stood with his knees a little bent, and his head slightly thrown back; his left foot dragged a little when he walked, and his calves were large and hard. Mentally he was normal, and physically well nourished. He was the fourth child; the three previous had died before they were twelve months old, but not of any nervous disease. There was no history of similar disease in the family. He was not seen again until Dec. 6th, 1880. Both legs now drag distinctly, but the left more than the right. He could still get up very well, but the knees were more bent. The left calf measured 9¾ in., the right 10 in. There was very little change in electrical reaction. The muscles of the calf reacted rather more readily to the anode than to the cathode of the galvanic battery. On March 14th, 1881, the bending of the knees was much more marked, and there was slight but evident lordosis; his walk was more shuffling, and he had rather more difficulty in getting up from the floor, but does not "climb up his knees." The measurement of the calves is the same, and the patellar tendon-reflex is still normal. Noteworthy points were the comparatively late age, considering the sex, of the commencement of the disease, the early stage at which it was first seen, and the rapid progress it was making, together with the good general nutrition.—Mr. WILLIAM ADAMS remarked that the case of Dr. Dowse was most characteristic of an interesting but at present little understood disease. Years ago he had divided in many such cases the Achilles tendon. The patients were generally small children; one of the first came under his care in 1867. Many of them are reported in the Transactions of the Pathological Society, vol. xix., 1868. Dr. Duchenne had regarded them from an electro-therapeutic point of view, he himself from an orthopædic. Mr. Adams stated that an interesting report of one of the latter character was published in the Transactions of the Medical and Chirurgical Society by Dr. Lockhart Clarke.—Mr. HENRY BAKER had treated these cases by a strap round the instep, which was successful as regards the tripping.—Dr. JAGIELSKI called attention to the increased size of certain of the muscles; he knew of two families in which there had been weakness of intellect associated with pseudo-hypertrophic paralysis. Faradisation, phosphorus, and strychnine had failed in his practice, and he would like to know from Dr. Dowse whether such patients demonstrated mental imbecility.—Dr. BROADBENT reported a notable instance in which the form of paralysis had attacked two girls in a family of three, whilst the boy was the subject of epilepsy. One important feature was wanting in this case—viz., hypertrophy in any of the muscles, though they presented characteristic symptoms. The disease in this case commenced as late as sixteen years of age. Hypertrophy was, perhaps, a symptom in the beginning of the disease.—Dr. GILBART SMITH hoped Dr. Dowse would state if he considered these cases of hypertrophic paralysis as instances of Duchenne's disease, as the latter name seemed to be applied to other nervous affections by many.—Dr. DOWSE said he did not recognise any special association between the physical and mental disease, especially in its early state, and he hardly called these cases of Duchenne's paralysis.—Dr. CROCKER alluded to the fact of there being a Duchenne's disease and a Duchenne's paralysis, and was inclined to think that there was frequently an association between the muscular and mental disease. He gave an unfavourable opinion as regards time in his case, as the disease had been making rapid progress during the last six months.

Reviews and Notices of Books.

Syphilis and Marriage. By ALFRED FOURNIER, Professeur à la Faculté de Médecine de Paris; Médecin de l'Hôpital, St. Louis. Translated by ALFRED LINGARD, M.R.C.S. With Prefatory Remarks by JONATHAN HUTCHINSON, Esq., F.R.C.S. London: David Bogue. 1881.

PROFOUNDLY interesting as are all the problems in connexion with syphilis, whether pathological, clinical, or therapeutical, their importance is intensified when the question of marriage is considered in the very many relations in which syphilis affects it. The rules at first laid down to guide the profession in this matter have proved in one particular disastrously misleading, for it is not the case that only the primary manifestations of syphilis are contagious, and that marriage is proper at any time after the subsidence of the early period of the disease, nor, on the other hand, is it true that marriage is unallowable at any period after contracting the disease. Neither of these extremes being correct, it is a difficult matter to hit upon just that happy mean between them that avoids the dangers on every side. There are few, if indeed any, who are so well qualified to speak on this subject as M. Fournier, and the English speaking part of the profession is under a debt of gratitude to Mr. Lingard for translating these valuable lectures.

Fournier first discusses the dangers imported into marriage by syphilis, and divides them into: (1) dangers to the wife of direct infection from a syphilitic husband, or infection from a syphilised fœtus; (2) dangers to the children of direct infection, of death of the ovum, fœtus, or child soon after birth, and of degenerative affections interfering with the robustness of the individual, apart altogether from the more special forms of syphilitic inheritance; and (3) dangers to the husband of serious or fatal tertiary manifestations. Having considered the danger of improper marriages, the next lecture is devoted to a discussion of the conditions under which a syphilitic man becomes fit for marriage, and these, stated very briefly, are as follows:—1. Absence of actual specific symptoms. 2. Advanced age of the diathesis, at least three or four years devoted to methodical treatment. 3. A minimum of eighteen to twenty-four months of immunity after the last specific manifestations. 4. A mild form of disease and absence especially of affections of the eye and nervous system. 5. Thorough specific treatment carried out in a methodical manner for a sufficient length of time. The minimum period of time of freedom from symptoms, and of duration of the disease under methodical treatment, is longer than that usually insisted on in this country, and Mr. Hutchinson, who writes the preface, while on the whole endorsing the author's views, suggests that his rules are fairly capable of some relaxation; it is, moreover, necessary to consider every case separately on its own merits, and not to be too much influenced by hard and fast standards. The third lecture is devoted to a consideration of the proper management of the various conditions brought about by syphilis present in one or both of a married couple. The various problems that arise when syphilis has extended into a family are stated with admirable clearness, and the lines laid down for treatment are such as must commend themselves to those acquainted with the management of these cases.

M. Fournier is firmly convinced that a child may inherit syphilis from the father only, the mother remaining healthy, and he believes that such a fœtus may subsequently, while in utero, infect the mother.

There is a question of medical ethics introduced to which it may be well to refer for a moment. In discussing the surgeon's duty when called upon to treat a wife recently infected by her husband, M. Fournier lays great stress upon

the paramount duty of concealing from the wife, at all costs, the real nature of her malady. And then he goes on to point out the difficulty and oftentimes the impossibility of this course, and that by concealing its nature we are often deprived of our only chance of treating the case successfully. Now, although the surgeon should never voluntarily or carelessly lead to an exposure of the errant husband, it is well to bear in mind that our duty to the wife s our patient is paramount, and that wilful and direct deception can never be justified. The old attempt to attain good ends by bad means is as disastrous in medicine as in social relations. We can only add that the translation is well done, and the book very creditably got up.

The New Playground, or Wanderings in Algeria. By ALEXANDER A. KNOX. London: Kegan Paul and Co. 1881.

THIS is a gossipy book, written partly, probably, to kill time during a winter's exile in Algiers, and partly for the information and amusement of others. The chapter on the climate of Algiers, written "for invalids," is the only one which has special interest for our readers. Judging from a record kept at the military hospital for the thirteen years preceding the winter of 1879–80 it appears that during the six winter months the average mean temperature was for October 68½° F., November 60°, December 55°, January 59°, February 55½°, and March 57°. Only once in the month of January did the thermometer descend to 32°, and the difference between the average maximum and the average minimum in these thirteen years was 14½° in October, 12½° in November, 13° in December, 12½° in January, 13½° in February, 14° in March, while the average maxima registered were 75½° in October, 66½° in November, 61½° in December, 60½° in January, 62° in February, and 64° in March. The sunlight is practically always at a maximum, and during Mr. Knox's sojourn he spent on an average five or six hours per diem in the open air. Ice was not seen during his stay, and be it remembered that his residence, in the suburb of Mustapha Supérieur, was 600 ft. above the sea level. On one day there was a terrible dust-storm, but only one.

The drainage of the town of Algiers is not of the best, and many of the houses are haunted by bad smells. Among the villas of Mustapha Supérieur the drainage is said to be better, and in 1879–80 Mr. Knox heard of six cases of typhoid occurring among the English residents of that locality. The accommodation at Algiers appears at present to be inadequate. The hotels are not to be compared with those on the Riviera, and the rental of villas for the winter months is rather high, varying from £200 to £500.

THE ROYAL UNIVERSITY OF IRELAND.

THE following are the arrangements for the medical portion of the curriculum as proposed by the committee appointed for that purpose by the Senate:—

In Medicine the degree of Bachelor of Medicine and Doctor of Medicine will be conferred; in Surgery, that of Master of Chirurgery; and in Obstetrics a special diploma. The course for the degree of M.B. and M.Ch., and the diploma in Obstetrics, shall extend over at least four years, and shall be divided into periods of at least two years each. Candidates will be required in addition to the ordinary first university examination to pass the following professional examinations—viz., first professional examination, second professional examination, and the degree examination, while candidates for the M.D. may present themselves at the examinations for this degree at the end of two academical years from the date of obtaining the degree of M.B. The fee for the first professional examination will be £1, and the subjects for examination zoology, botany, and a modern language. Candidates who pass with honours, and whose aggregate marks entitle them to a first class will receive exhibitions of £35, and those whose aggregate marks entitle them to a second class will receive exhibitions of £20. The second university examination in medicine comprises anatomy, physiology, materia medica, and chemistry, and the fee for the examination will be £1. The examination for the M.B. degree will comprise the subjects recommended for study during the second period of medical study—viz., anatomy and physiology, practical anatomy, theory and practice of surgery, midwifery, theory and practice of medicine, medical jurisprudence; also examinations in clinical medicine and surgery. Candidates who pass with honours and obtain a first-class certificate will receive exhibitions of £60; a second-class, exhibitions of £40. The fee for this examination will be £3. The degree of Master of Chirurgery will be conferred only on candidates who have obtained the degree of M.B. of the University; and the examination will comprise the theory and practice of surgery, including operative and clinical surgery. The fee for this examination will be £5. The examination for the diploma in Obstetrics will be conferred only on candidates who have obtained the degree of M.B. of the University. The fee for the examination will be £2, and the subjects will comprise the theory and practice of midwifery, and the use of obstetrical instruments and appliances. The degree of Doctor of Medicine may be conferred on any candidate who has obtained the degree of Bachelor of Medicine, and has been engaged for two years in hospital, or private medical or surgical practice, or in the military or naval medical service. The candidate must also furnish a thesis, which will not be approved unless it contains some original or personal observations in practical medicine, surgery, midwifery, or in some of the sciences embraced in the curriculum, or else a full digest and critical exposition of the opinions and researches of others on the subject selected by the candidate, accompanied by precise reference to the publications quoted. All certificates of attendance at lectures must expressly state the absolute number of attendances at lectures of the individual student, and no such certificate will be received by the Senate unless it show a *bonâ fide* attendance of two-thirds of the whole course. All degrees in the University will be open to persons of either sex; but the examinations for women will be held apart from those of men, but will take place upon the same days. The Committee recommend that the University Buildings shall be situated in Dublin.

THE HIGHER QUALIFICATIONS OF THE IRISH BODIES.

To the Editor of THE LANCET.

SIR,—The exact position of the Royal College of Surgeons in Ireland, in respect to its highest qualification, has not, as far as I have seen, been distinctly stated in any of the leaders and letters which have appeared in your columns.

This body possesses the power of granting an honorary Fellowship, but it has been so sparingly exercised that at present but seven such Fellowships are in existence, including such names as William Bowman, George Gulliver, and others of equal standing; with these exceptions the Fellowship has never been granted without examination since the date of the last charter in 1844.

I am not so well acquainted with the regulations of the King and Queen's College of Physicians; but I believe that their Fellowship, though given by election, is granted under very stringent regulations, and only to those holding the highest position as physicians, and is almost entirely confined to gentlemen practising in Dublin.

I am amongst those who think that, except in very rare instances, the higher qualifications should never be granted otherwise than by examination; but that the examinations, though very thorough, should be chiefly practical, and granted only after some years of practice; then would result a selection of the most hard-working and energetic men; and to such men the attainment of a higher examinational grade would prove a stimulus of great value.

I am, Sir, yours &c.,

March, 1881. ONE INTERESTED IN MEDICAL REFORM.

THE LANCET.

LONDON: SATURDAY, MARCH 26, 1881.

THE helplessness of the Local Government Board in respect to small-pox, and the arrangements for the control of that disease, are, if possible, becoming more and more humiliating. Questioned in the House of Commons as to supplies of vaccine lymph for revaccination, the President is careful to explain again, as he explained last session, that the National Vaccine Establishment is simply concerned with the issue of lymph as *stock*, for starting fresh series of arm-to-arm vaccination, and that it is not proposed to do more than this when the establishment is enabled to supplement its supply of humanised lymph with animal lymph. In other words, if it has happened (as has been abundantly shown, and is now again being shown) that the regulations and suggestions of the National Vaccine Establishment in respect to the cultivation of lymph for revaccination have proved futile, so much the worse for the public; but it is of infinitely more importance in the Board's opinion to maintain the traditional practice of the National Vaccine Establishment intact, although it was established at a time when very different views as to the need for revaccination were held from those held now, than to disturb its even course by meeting a proved public want. Again, the decision of the House of Lords in the Hampstead Hospital case has thrown the Local Government Board into a state of perplexity, which proves how entirely it has been following a hand-to-mouth policy in regard to the metropolitan infectious disease hospitals. We have now the extraordinary spectacle of a great central body professing its present inability to deal with this hospital question in regard to small-pox until the Metropolitan Asylums Board has given some indication of what it is going to do; and, on the other hand, we have the latter Board equally professing helplessness until it is advised by the Local Government Board! This is a spectacle of the blind leading the blind, and both falling into the ditch with a vengeance. But not content with floundering in the sufficiently deep mire (as most persons would think) into which the Central Board had fallen prone, the President of that Board must seek to prepare other and deeper ditches for himself or his successors to fall into.

On the 19th inst. the President of the Local Government Board received a deputation of the inhabitants of the borough of Chelsea with regard to the Fulham Small-pox Hospital, headed by Mr. FIRTH, M.P. Nothing could be better than the mode in which Mr. DODSON referred to the Hampstead Hospital case. He said, as reported, "they [the Board] were now in a position of great legal difficulty by the decision which had been given in the Hampstead case, because it cast a doubt, at all events, upon the legality of maintaining these different hospitals. Some doubt had been expressed as to whether the intention was that these hospitals should be established for the benefit of London at large. He did not think the decision threw any doubt upon that point, as he understood it. These hospitals were provided at the expense of the whole of the ratepayers, and each and all of them for the benefit of the ratepayers at large. What the decision, so far as it went, had decided was this, that the Act did not give power to the managers of the Metropolitan Asylums to erect a hospital which was a nuisance to the neighbourhood, and which was convicted of being a nuisance." But what are we to think of the expression of opinion on hospital accommodation that followed, coming, as it did, from a responsible Minister of the Crown? "It has been suggested," said Mr. DODSON, "that there might be provision for the infectious sick in the different districts. He had been reminded that there were thirty-nine sanitary districts in the metropolis. If each of these districts contained a small-pox hospital he did not know whether the risk of the propagation of disease—whether they accepted the germ (!) or the contagion theory—would be less than by the larger hospitals. Many persons would be inclined to think that it would be much greater. Whether they had a large number of small hospitals or a few larger hospitals, the danger of spreading the disease by nurses, attendants, and visits of friends would be much about the same." In other words, the preposterous suggestion is made that the chances of incidental communication of the contagion of small-pox (setting the question of atmospheric diffusion aside for the present) to the members of a community in the immediate vicinity would probably be as great if the hospital were small as if it were large! This topsy-turvy application of the doctrine of chances surely needs no refutation, but suggested from such a source its mischievousness must be untold.

We are beginning to know something of the risks attending large accumulations of small-pox patients to the people living in the neighbourhood in which they are placed; we have a tolerably clear knowledge of the uncontrollable character of the contagion when the disease is retained in the houses of the poor—an uncontrollableness which, in conjunction with our knowledge of a like phenomenon with other infectious diseases, led to legislation as to hospital provision to be made by sanitary authorities. And now Mr. DODSON helps us to a suggestion that hospitals in regard to small-pox are equally harmful, whether of large capacity or not, and so condemns inferentially the legislation on the subject altogether, and lands us in the paradoxical position that every family ought to keep its own small-pox patients within its own circle! It seems difficult to believe that the President of the Local Government Board can have committed himself to statements such as we have quoted unless he has some evidence in hand concerning mischiefs from moderate-sized small-pox hospitals. Not a few of such hospitals were scattered about the metropolis in 1871 and 1872, but no account of them was ever given to the world, and certainly no suspicions ever got afloat as to their proving mischievous in the localities where they were situated. If the Local Government Board possesses an account of them, it is high time it was made public, and if the account confirms Mr. DODSON'S suggestion, what possible defence can be made of the action of the Central Board in relation to the Metropolitan Asylums Board as regards their small-pox hospitals since the epidemic of 1871-72?

A CORRESPONDENT drew attention in our columns last week to the casualties of medical officers in the late action in the Transvaal, where both the surgeons who accompanied the troops up the Majuba-hill lost their lives from wounds received in that action. Since the publication of this letter the relative *advantages* and *disadvantages* of the two positions, that of "combatant" and that of "non-combatant," have formed the subject of an official utterance by the Secretary of State for War in his place in Parliament. Mr. CHILDERS observed: "I cannot undertake to lay down the broad proposition that non-combatant officers are to have all the advantages of combatant officers, unless the converse be also accepted—that is to say, that they are to have all the disadvantages." Paramount among these disadvantages we take to be the risk of casualty in action. The facts in relation to these matters are exceedingly interesting.

We have repeatedly pointed out that the term "non-combatant" as applied to army surgeons is a misnomer; their death-roll from all causes is shown by statistics to be 20 per cent. higher than that of the so-called combatant officers. No one will deny that a medical officer struck down while attending his men in cholera or yellow fever epidemics does sacrifice his life to the call of duty as much as the military officer who is slain on the battle-field. The two recent campaigns show that in addition to the risks of climate and disease to which all branches of the military service are necessarily exposed in warfare, our army surgeons are called in the discharge of their duty to be under fire, are often wounded, and often die. The Afghan or Boer bullet shows no discrimination in sparing a medical "non-combatant." Proof is hardly needed, but the casualties amongst medical officers in Afghanistan, Zululand, and the Transvaal, shown by the following list, are strikingly convincing of the soundness of the argument we advance:—

Killed or Died from Wounds, Climate, and Exposure.—Deputy Surgeon General J. H. Porter, Cabul; Surgeon-Major H. Kelsall, Khyber Pass; Surgeon-Major J. Wallace, Lundi Kotal; Surgeon-Major J. Wright, Attok; Surgeon Ambrose Kelly, massacred at Cabul; Surgeon Keith, Cabul; Surgeon-Major Bolton, Kandahar; Surgeon-Major A. R. Hall, Malta, *en route* from Kandahar; Surgeon-Major Peter Shepherd, massacred at Isandlana; Surgeon Brice, massacred at Isandlana; Civil Surgeon Glanville, massacred at Isandlana; Civil Surgeon Cobbin, massacred at Intombi; Surgeon-Major Cornish, Lang's Nek; Surgeon Landon, Lang's Nek.

Wounded in Action.—Deputy Surgeon-General Townsend, Kurram Valley; Surgeon Duncan, Peiwar Kotal; Surgeon Burroughs, Afghanistan; Surgeon-Major Preston, Maiwand; Surgeon Ward, Transvaal; Surgeon Longfield, R.N., Ekowe.

Nevertheless we think it a matter for regret that Mr. FINDLATER should have asked the Secretary of State for War whether "he would take into consideration the justice of extending to the Army Medical Department the privilege now enjoyed by all combatant officers of counting as full-pay service towards retirement any time on half-pay, not exceeding one year, when such half-pay had been necessitated by sickness incurred in and by the service; also such half-pay as results from reduction of the departments, not exceeding two years, as laid down in the Army Circulars, March 1st, 1880." It is little more than a year since the conditions of service of the army medical officers were revised, and a new Warrant was brought out introducing marked improvements in them. Among others, there was an extension, from six months to one year, of the period during which a medical officer may be retained on full-pay when disabled for duty by sickness contracted on service. The provisions of the Warrant gave general satisfaction to the department and the profession, and we think Mr. FINDLATER has been injudicious and ill-advised in attempting to reopen the subject. Mr. CHILDERS was fully justified in adverting to the recent settlement of these questions as a ground for refusing again to take them up, and he fairly pointed out that medical officers cannot expect to have all the advantages enjoyed by combatant officers unless they are prepared at the same time to accept all the disadvantages. This argument, however, appears to involve the duty, on Mr. CHILDERS' part, of seeing that medical officers are not unfairly deprived of any of those advantages common to both branches which have been acknowledged to be justly due to them. We recently pointed out that one of these privileges—a fair share in the distribution of rewards and honours—had been withheld. One of the points very clearly laid down by Lord CRANBROOK'S Committee, and accepted by the late Secretary of State for War, was that in such distribution "the Medical Department should be judged rather by the standard for combatants than for non-combatants," and we trust Mr. CHILDERS will take such measures as he may deem most advisable to ensure this being carried into effect in spite of the opposition practically shown to it by the authorities at the Horse Guards.

WE gladly welcome, and will try to cherish, the hope that a satisfactory system of management is, at length, being established at Guy's Hospital. The new regulations which lie before us do not, indeed, bear out all the bright promises with which the profession and the public have been entertained during the last few weeks, but possibly they mean more than they say. It is, however, so common an experience that these radiant harbingers of reform mean *less* than they say, that we must, at the risk of being judged hard to please, and even censoriously hypercritical, venture to point out a few dark specks on the halcyon prospect.

At the outset, while it is cheering to note that the Sisters are to be "appointed by the Taking-in Committee," it is not equally satisfactory to find that they "shall be selected from the register of applicants kept by the Matron." It is natural that applicants for the office of "Sister"—that either meaningless or mischievous title for a chief nurse—should address themselves to the Matron; but it is not, therefore, necessary that the "Lady Superior" or "Lady Superintendent"—who, we are glad to note, is henceforth to content herself with the more modest designation of Matron—should be entrusted with the construction of a "register" which is to be the passport to patronage. This may seem a small matter, but, looking to the recent history of the institution, it would have been better to avoid even the appearance of evil. Far more serious is the provision that the Sisters, when appointed, "shall be responsible to the Treasurer, Superintendent, and Matron for the efficient nursing and good order of the patients," &c. Considering that the whole of the recent trouble has been

due to the persistent resolve, and endeavour, to subordinate the "nursing" to the views and will of the Treasurer and Matron, it is, at least, disquieting to find that the same authority is to be dominant. We attach no importance whatever to the fact that the Superintendent is to be one of the Triumvirate. The medical man holding that office is not, at Guy's, as shown by experience, necessarily the representative of the medical staff; but if he were, looking to the fact that "the Taking-in Committee" is to appoint the Sisters, and that this Committee meets every week, and is supposed to exercise some of the functions of a "House Committee," it is, we fear, significant that it has not been entrusted with a share of the authority now vested in the Treasurer, Superintendent, and Matron, with respect to what is essentially a prominent element of the medical work—that is, the nursing! Nor are we able to regard with entire confidence the specification of duties which the Sisters are required to fulfil. What, for example, is the meaning of the clause in Rule 4, which enjoins that "they shall endeavour to have the bed-cards filled up by the medical or surgical registrars either before or shortly after the patients have left the hospital"? Surely it is, or ought to be, the business of the resident medical officer to see that the medical and surgical registrars do their duty. Are these young men to be taught their profession or kept up to their work by the Sisters? The Superintendent furnishes the cards, and it is *his* function to see that they are duly filled up. There can scarcely be a just appreciation of the line which should be drawn between the duties of a nurse and those of a resident medical officer, when such a regulation as this can be either newly framed or retained. Again, Rule 10, which more explicitly defines the duties of the Sisters, directs that "they shall pay particular attention to the state and symptoms of the patients, especially if these be of an uncommon nature, that they may be able to report to the attending physician or surgeon, whom they shall *accompany* when visiting the patients." There is, of course, no objection to a nurse watching a case; it is obviously a part of her duty to do this, but the position she occupies would be more clearly and justly marked if she were directed to *attend* the physician or surgeon, instead of to "accompany" him round the ward. It might not be worth while to criticise this expression, but that further on in the same Rule we find the salutary but strangely worded intimation that "they [the Sisters] shall on no account give medicine to patients without the *concurrence* of the medical attendant;" and when in doubt as to her instructions, the Sister is to "apply at once to the House Physician or to the House-Surgeon for *advice*." The italics are ours. It may be simply a concession to the maudlin and false sentiment of the day in respect to "woman's place" and "women's rights," that the nurses in charge of wards are instructed in this more than equivocal phraseology, just as it is in deference to a spurious religious sentiment that they are called "Sisters;" but we think it is a mistake, and, for ourselves, we should certainly regard with distrust not less than dissatisfaction regulations thus drawn. The general impression conveyed is either disquieting or misleading. Again, what is the meaning of Rule 13, "They shall be at liberty to employ the patients to assist in the ward work, provided always such employment be *certified* by the medical attendants to be not inconsistent with their recovery"? Are the medical attendants at Guy's—who, as it is, have not time to keep, or dictate, the usual clinical records of their cases—to give a certificate to the Sister for each patient who may safely be employed to do a little dusting in the ward? The notion is grotesque. It is, however, part of a system which seeks to make the female nursing element an agency apart from, and only loosely related on equal terms, instead of being subordinated, to the medical treatment.

The new regulations for "nurses"—a lower order of beings in the hospital system—also challenge some criticism. These women, who are in fact the immediate attendants upon the patients, and therefore the direct agents of the medical staff, are to be "engaged and discharged by the Matron, with the concurrence of the Superintendent, and shall be under the immediate control of the Sister of the Ward to which they are appointed." The Taking-in Committee has a qualified jurisdiction—on appeal—in the matter of the change of nurses. They are not, as under the recent bad *régime*, to be removed capriciously from ward to ward. The "concurrence" of the medical officer is to come into play in this matter, and unless he actively *concurs*—in some way—there will be few changes. This is a distinct gain, and, so far as we can gather from the wording of the new regulations—waiving for the moment the jubilant construction which has been hastily put on them—it is the *only* concession which has a clear and sharp ring in it. Nurses, like Sisters, are to "*accompany* the medical officers in the course of their daily visits," and, when requested or required, they are to attend to their medical duties, and even to assist the surgeons or dressers. This is considerate, particularly when we bear in mind that the sole business of the hospital is to treat patients with a view to cure or relieve them, and that "nursing" *is* treatment. There are interesting as well as grave points for notice—for example, when Nurse-probationers essay to rise from that low rank to the dignity of full Nurses they must "undergo an examination," which is to be conducted "by the matron *and one or more of the medical staff*." Might it not be well that the Medical Council should be moved to send inspectors to these important examinations, conducted by "the matron and one or more of the medical officers"? In all seriousness, it is difficult to believe that the bad spirit has been exorcised at Guy's, and that "nursing" is no longer to be glorified as a craft in itself while a farce like this is perpetrated. The simple question is, or ought to be, whether the *servants* employed in the wards of a hospital to carry out the instructions of the medical staff have been docile and dexterous. The ceremony of an "examination" keeps up the absurd and injurious impression that there is more in *nursing* than cleanliness, kindness, and womanly tact. The idea that there is anything more ought, in the interests of humanity and common sense, to be sternly crushed out, with or without the "concurrence" of the medical faculty.

We have said that the new regulations at Guy's Hospital are welcome. It is something—perhaps much—gained that the authority of the Treasurer is not so conspicuously asserted as in recent but, let us hope, *past* times. That this authority is not suspended is clear from the provision that the "Sisters" are to be held responsible to the Treasurer as

first and chief in a triumvirate, upon which the medical staff is not, as it ought to be, directly represented. We must wait to see how the work of reconstruction is carried out at this hospital before forming a final judgment on the new instructions, or attempting to form an estimate of the good which may have come out of the evil that awhile ago filled certain members of the medical faculty and the profession and the public with alarm. It is, perhaps, natural that the Governors should be unwilling to change their policy too openly and suddenly, though it is only manly to confess an error, and to mend it straightly when once it has been discovered and exposed. The proper course to have taken would have been to admit certain members of the Medical Faculty to the Board, instead of giving them seats as a Sub-Committee, and thereby to have recognised the medical element in the active management of a medical charity. The Founder of the hospital plainly intended that medical men should have seats on the Committee of Management; but the present administrators of the trust have, true to the spirit of modern progress, "shaken off the dead hand." We pause to see whether the living hand which has now undertaken the work of reform at Guy's will be loyal, firm, and dexterous. It is in no carping mood that we criticise the concessions which have been made, but we must remember that there is not less need of public caution in this matter than of personal consideration and courtesy.

THE operation of nerve-stretching as a means of treating locomotor ataxy was introduced, it will be remembered, by Dr. LANGENBUCH, who recorded a startling improvement in a case so treated, the intense pains and considerable ataxy having almost entirely disappeared after the operation, and the diminished sensibility having returned to the normal. Symptoms of similar character and of marked degree persisted in the upper limbs, and, indeed, appeared to have become more intense. Hence it was decided, three months later, to stretch also the nerves of the arms. While the patient was under the influence of chloroform an epileptic fit occurred, and he died. The spinal cord from this important case was given for microscopical examination to Professor WESTPHAL, who has just published the results in the *Berlin. Klin. Wochenschrift*. The cord was seriously crushed at certain places, probably in the process of removal. Other parts, however, were in good condition for examination, especially the lumbar enlargement, the upper part of the cervical region, and small parts of the dorsal region. These parts showed nowhere the clear tracts which indicate the presence of sclerosis in hardened cords. Microscopical examination in glycerine showed no granule corpuscles nor the translucent appearance which indicates degeneration. After tinting, the posterior columns were found intact throughout, without a trace of sclerosis or of atrophy of the nerve-tubules. The periphery of the posterior columns, in which a slightly paler colour had been noted with the naked eye, tinted more deeply than the rest, and here the regular arrangement of the nerve-fibres was wanting, and the condition showed clearly that this appearance had only arisen from an injury during the removal of the cord. Sections from the dorsal region and the upper cervical region showed also a perfectly normal white substance, nowhere any trace of sclerosis or of atrophy. No abnormal changes were found in the grey substance, and the nerve-fibres of the anterior and posterior roots exhibited also no trace of atrophy.

It is certain from these facts that the case was not one of posterior sclerosis. Can we (WESTPHAL asks) from these facts draw the inference that in a certain stage of tabes the disease may exist as a neurosis without structural changes, and that the degeneration of the posterior columns represents a later and consecutive change which has nothing to do with the special symptoms, in accordance with the older view held by TROUSSEAU? This conclusion seems incompatible with the fact that in all cases examined hitherto, without a single exception, structural changes in the posterior columns have been found. Moreover, the case of Dr. LANGENBUCH does not, he urges, point to such a conclusion. The clinical history has only been very briefly recorded, but the facts as stated are altogether peculiar. The affection had been of very rapid development; although the symptoms were advanced, they had only existed for a few months, and the arms were considerably affected a few months later. The case thus resembles those of so-called "acute ataxy," such as occur spontaneously or after acute febrile diseases, and which have a course altogether different from that of ordinary tabes, often ending in complete recovery. The nature of these cases is unknown.

LANGENBUCH was inclined to regard his case as one of a primary affection of the peripheral nerves, but, unfortunately, the large nerve trunks could not be removed at the post-mortem examination. It is, however, noteworthy that at the operation the left sciatic was seen to be "reddish and somewhat swollen."

In publishing these facts, WESTPHAL does not desire to discountenance the operation in other cases in which the existence of a spinal lesion is undoubted, since, as he rightly points out, experience rather than theory must be our guide; but he strongly urges, and with reason, the great importance of a thorough and skilled examination of the nerve symptoms in all cases before the operation, that we may know whether the cases so treated are to be regarded as examples of true posterior sclerosis or not.

THE evil to which "L. S. C." directs our attention to-day is becoming a very serious one both for the public and for medical practitioners. It may be characterised as the Private Dispensary System. On Feb. 5th "L.R.C.P. Edin." strikes a very kindly note of warning to young medical men, who are often victimised in connexion with this "so-called Provident Dispensary." It is important at the outset to draw a distinct line between the proper Provident Dispensary and the "so-called Provident Dispensary," or, as we have called it, the Private Dispensary System. The Provident Dispensary is an institution managed by a Committee of a public character, with which several medical men are connected, and to which the working classes subscribe, in sickness or in health, by a systematic weekly payment all the year round. The Private Dispensary, on the other hand, is rather a mysterious and dingy-looking affair. It is here to-day and in another street to-morrow. The gentleman to be seen on the premises is generally one whose name is not to be found in the Medical Register, and his appearance occasionally suggests that, however affluent

the receipts, they do not go to his tailor. It is true that generally the name of a registered medical man is placed in large letters over this institution, or over these institutions, for one gentleman generally owns a group of them, and occasionally his carriage may be seen at the door of one of them, suggesting a grandeur in strange contrast with the humble style of the unqualified assistant who sees most of the patients and does most of the work. Well, the question is: What is the harm? Who is injured? What business have we or any others to assume the office of censor in regard to such experiments? The question is a very fair one, for we are strongly of opinion that no perfectly satisfactory means have yet been discovered of adjusting the supply of medical service to the poor on conditions of efficiency and dignity. We will frankly admit that neither the Provident Dispensary nor the Free Dispensary appears to us satisfactory. In the one the medical man seems to be paid, and is so only very inadequately, the patient perhaps thinking that he is paying him handsomely. In the Free Dispensary the medical man does the public's work of charity, and the poor are often degraded by it. But this is not the question just now. We are concerned with the evils of Private Dispensaries, and have to justify ourselves for speaking of them in terms of warning. We warn the public against them, for it has been repeatedly shown that they are worked on a large scale by unqualified assistants, and often very ignorant ones. This comes out in the letters of our correspondents, and occasionally at the inquests of coroners. Persons who are seriously ill will do much better to go to the private house of a neighbouring medical man than to a cheap or Private Dispensary, which is presumably worked by an assistant who probably knows no more than a neighbouring chemist. There have never been wanting good men in poor neighbourhoods who have adapted their fees to the means of their patients. Or if people do go to the Private Dispensary, we should advise them to ascertain whether the person they see is the principal, and whether he is a registered medical man. Another class has to be warned against the ways of some of those who deal in Private Dispensaries. Our correspondent of Feb. 5th, "L.R.C.P. Edin.," points out the snares that the "so-called Provident Dispensaries prove in the great majority of instances to young medical men who are tempted to eagerly purchase what on the surface appears a most profitable investment." It would be most wrong to think that all men who try to work Provident Dispensaries work them delusively, and sell them at a higher price than they are worth. We would fain believe that our correspondent may be wrong when he estimates that "the great majority" of those who sell Private Dispensaries are selling what is comparatively worthless. But nobody who does not shut his eyes can fail to see that a new trade has arisen in the profession which needs to be guarded against—viz., the sale of quickly extemporised and as quickly abandoned Dispensaries, as different as possible from the sale of a well-conducted and long-remembered private practice. We repeat the expression of our respect for men who for modest fees give their own advice to the poor. But we distinguish between them and those who only give their names to Dispensaries, send to the poor unqualified assistants, and after having created a Private Dispensary proceed to sell it.

Annotations.

"Ne quid nimis."

THE METROPOLITAN ASYLUMS BOARD.

AT the meeting of the Metropolitan Asylums Board, on the 20th instant, Dr. Brewer in the chair, a report was presented by the General Purposes Committee, prepared by the Board's solicitors, on the position of the Board in relation to the Hampstead Small-pox Hospital since the recent decision on that case in the House of Lords, and a deputation was received from the Sanitary Committee of the Hackney District Board of Works, headed by Mr. Gane and Dr. Tripe, to submit certain statements on the structural arrangements of the Homerton Small-pox Hospital. The statements, in form of memorial, as to Homerton were referred to the Homerton Hospital Committee. The report as to the Hampstead case, referred to Appeal No. 1 in the House of Lords, which was for a new trial, and which had been placed in suspense, and to Appeal No. 2, on the question of law, which had been heard before the House of Lords and had been decided against the Asylums Board. The report was accepted, and, after consideration, the following resolutions were passed:—"1. That the solicitors should be directed to proceed with Appeal No. 1—i.e., for a new trial,—the House of Lords to be asked to relieve the Board from the payment of a certain amount of the plaintiffs' costs, as ordered by the Court of Appeal as a condition of granting the appeal for a new trial. 2 (as a rider to the former resolution): That the managers desire to be now advised by the Local Government Board whether they are to receive any more small-pox patients into the hospitals, and what, if any, steps the Local Government Board propose to take with a view to give the managers authority to carry out their duties without further molestation and litigation." The first resolution was carried by a majority of 1 (the votes being 20 to 19), and the second unanimously. What the Asylums Board hope to gain by a new trial in the Hampstead case it is difficult for any but the legal mind to foresee. With regard to the second resolution, it may be said that in speaking to the Fulham deputation, on the 19th, Mr. Dodson stated that the Local Government Board would not come to any decision upon the course it should take in its present perplexity anent the metropolitan small-pox hospitals until the Metropolitan Asylums Board had decided upon *their* course. It now appears that the Asylums Board is waiting upon the Local Government Board to declare themselves.

NAVY MEDICAL DEPARTMENT.

IN bringing forward the Navy Estimates, Mr. Trevelyan adverted to the very unsatisfactory state of the Medical Department. Instead of having, as he conceived ought to be the case, four candidates for every vacancy, they have four vacancies for every candidate; and it is long since the supply of candidates has been equal to the demand. The supply of late years has come in large proportion from the Irish medical schools. "It was important in a national service that candidates should be drawn from all parts of the United Kingdom. They had, however, only 103 from the medical colleges of England, 128 from Scotland, and 251 from Ireland." We presume these numbers have been calculated from the officers actually in the service, for it would require the returns of very many bygone years to make up a total of 482 candidates. Mr. Trevelyan stated that it had been determined to adopt the report of the Committee on which the recent changes in the Army Medical Service had been based, and to add to the pay 7 per cent. to compensate the naval medical officers for the more dis-

agreeable nature of their service. He added that there were other advantages which they would enjoy, and that he had no doubt the difficulty to which he had referred (of obtaining an adequate supply of candidates) would be removed. We are promised that an Order in Council embodying these improvements will be published in a few days. Until this is done we reserve all further remarks, except that we trust the new regulations may be of such a nature as to remove the existing objections to the service, and to make the Naval Medical Department a desirable career for well-educated gentlemen. Meanwhile we remark with satisfaction that we were the first to point out that, as regards pay, this principle had been evolved from the inquiries made by a committee that sat in 1866, and we trust that this Government will extend that principle more generally, taking other directions than that of pay only, as many improvements are required other than those so long established. It is a subject for regret that at the commencement of the present movement, when the age for retirement of the senior medical officers at sixty for sixty-five years of age was effected, a great error was committed in depreciating the value of their services to about seven per cent. below, instead of seven per cent. above, that at which those of the senior officers of the Army were computable, and soon after computed in a new Army Warrant; this inequality remains to the injury of the officers affected. This should be redressed in the forthcoming Warrant, as it shows that in small matters the Navy is too apt to be thrown in the shade of the Army. The medical schools of England and Scotland do not now yield so many candidates for the Navy as Ireland alone does, while Oxford, Cambridge, and the London Universities are not represented in the Naval Medical Service.

SUPPRESSION OF TYPHOID STATISTICS BY THE FRENCH GOVERNMENT.

THE French Government appears to have resorted to the feeble expedient of secrecy to cover sanitary imperfections which it is its duty to reform. Dr. Galliott, of the French Marines, had written a remarkable report on the prevalence of typhoid fever in the Toulon barracks, and had received a gold medal from the Ministry of Marine in recognition of his services. Anxious to study the fruits of a large experience, a correspondent applied to Dr. Galliott for a copy of his report, and was not a little surprised to hear that he had been expressly forbidden to show it to anyone. The gold medal was allowed to be shown; but the report which had won this reward was for ever consigned to silence and oblivion of a ministerial pigeon-hole. Some facts in reference to the matter, however, have been ascertained. The barracks of Mourillon are unfavourably situated, and were till recently occupied by about 2000 marines. In front of the barracks there is a large main sewer, which is not water-tight. Hence the organic matter and sewage from the village of Mourillon accumulate in front of the barracks to a depth sometimes of a yard and a half. This can only be cleared away by rain; but it rarely rains on these coasts unless there is an east wind; and, as the mouth of the sewer which communicates with the sea faces the east, the waves beat up against it and check the exit of the sewage. The decomposition of organic matter in the sewer is therefore facilitated by the admixture of water, and the leakage is increased. Hence arise continuous outbreaks of typhoid fever in the neighbouring barracks, these outbreaks corresponding very accurately with high temperature, easterly winds blocking the mouth of the sewer and rain increasing the amount of sewage and accelerating its fermentation. The number of cases that have occurred is appalling. We cannot of course give the numbers, as communication of the official returns was not allowed; but from several indirect sources, it is pretty clearly shown that there were about a thousand cases of illness during the course of twelve months, and that half of this number were fully developed cases of typhoid fever, while a large proportion of the remaining patients also showed symptoms of a suspicious, if not of so conclusive a character. The majority of cases occurred among the volunteers for one year's service, for these men are young, eighteen to twenty years old, and therefore most susceptible. Indeed, it seems that a young recruit, if quartered in these barracks, would have little or no chance of escape, from at least a slight, if not a fatal, attack of enteric fever. That the report in which these facts are set forth is not published is much to be regretted, as it gives remarkable evidence derived from many hundreds of cases of the extreme susceptibility of certain classes and the total exemption of others. Youths coming from countries and districts free from typhoid fever almost invariably contract the disease when quartered in these barracks; while the natives of Toulon, and others living in similarly contaminated centres, have been so thoroughly inoculated with the poison that the specially unfavourable position of the barracks does not affect them. It is satisfactory to learn that after many years of illness and a scandalous and wasteful loss of many hundred lives, the quartering of young recruits at the Mourillon barracks has at last been forbidden. These are now sent either on board ships, or in the outlying forts. Only a small number of older soldiers, numbering 1200 in all, and who have passed the most susceptible age, are allowed to inhabit these fatal barracks, and the result has been that no more cases of typhoid fever have occurred.

THE PATHOLOGY OF ATHEROMA.

THE theory of the origin of atheroma, to which Virchow has given currency, regards it as of inflammatory origin, and has been conveyed into modern pathology by the help of the name "endarteritis deformans." This designation, although not unassailable, has been widely accepted on account of the apt expression which it gives to the conspicuous characters of the morbid change. The same theory of initial inflammation has been, in effect, adopted by Lancereaux, while Cornil and Ranvier do not admit any other element in the morbid process than simple degeneration.

The latter view is regarded as the more probable by the writer of a recent memoir in the Paris *Revue de Médecine*, M. Hippolyte Martin, who has endeavoured to ascertain the pathological origin of the degeneration, and believes that he has found it in a lesion of the nutritive arteries of the walls of the vessels, to which the visible degeneration is simply secondary. In the early stage of the affection the cells of the connective tissue of the vessels may be found notably increased in number, and the middle and internal coats are increased in thickness; these changes cannot be regarded as the result of any irritation by the globules of fat which may be found sparsely scattered through the wall. If the minute vessels which ramify in the external coat before penetrating the middle layer are examined, they are found to be healthy, with the exception of those which correspond to the spot of atheroma. Here, however, the nutritive artery of the degenerated region presents a striking proliferative endarteritis, which, in the case of extreme degeneration of the atheromatous patch, amounts to almost complete obliteration of the minute vessel, so that very little blood can circulate through it. This lesion is never absent, although considerable care may be necessary to find it. The change is only found in the vessel going to the diseased spot; other arteries, although closely adjacent, may be perfectly healthy. But it may be held that in the old, in whom generalised arterial disease is common, the affection of the arteries, and of their nutritive vessels, may be due to

the same cause, and do not stand in any causal relation. In contravention of this objection, M. Martin describes the case of a lad, nine years of age, who died of diphtheria. At the autopsy two atheromatous spots were found in the commencement of the aorta, above the sigmoid valves. They were well marked, about a square centimetre in extent. All the other vessels were healthy. Sections at the position of the atheromatous patches showed, in the middle of healthy tissue of the outer, and even of the middle coat, a perfect example of endarteritis of the nutritive vessels, one of which was almost obliterated. Moreover, it was evident from the histological characters of the two that the affection of the nutritive artery was of older date than that of the inner coat of the aorta.

This lesion in the vasa vasorum appears to commence in their inner coat, the nutritive supply to which is always the most difficult, but at a later stage the middle coat is also affected, and its muscular fibres may be observed to undergo a fatty degeneration. This alteration is regarded as inflammatory in nature, the result of some, at present unknown, cause. The facts Martin has ascertained are of much interest and importance, but they only put the origin of the disease farther back, and farther into the region of pathological mystery. It is conceivable that mechanical strain and other causes may determine the occurrence of a degenerative inflammation beginning in the wall of the strained vessel, but the cause of the affection of the vasa vasorum is entirely unknown. The change in the larger artery may be due to the disease of the minute vessels, but what is to explain the latter lesion? And if we admit it to be a primary endarteritis, may not the disease of the wall of the larger vessel be in many instances of the same nature?

PHYSIOLOGICAL PROPERTIES OF THALICTRIN.

M. DOASSANS in an inaugural thesis published in Paris, and abstracted in the *Revue Scientifique*, has given some very interesting particulars in regard to the action of the essential principle of a plant rarely found in the Pyrenees, named the Thalictrum macrocarpum, belonging to the Ranunculaceæ. The root of this plant contains two substances, which have been isolated. One is an alkaloid, to which M. Doassans has given the name of thalictrin, and which proves to be, although as yet he has only been able to obtain it in too small quantities to permit its composition to be determined, a crystallisable substance, capable of combining with acids to form crystallisable salts. The other substance is a yellow colouring matter, which apparently confers the yellow tint characteristic of the fresh section of the root. On treatment of the root with successive portions of alcohol, and with water acidulated with hydrochloric acid, this yellow substance can be obtained in a state of purity, and has been christened *macrocarpin*. Macrocarpin is neither an alkaloid nor a glycoside, but a substance which chemically resembles berberin, from which, however, it differs in some particulars; it has no therapeutic action.

Thalictrin, on the contrary, has well-defined and powerful physiological properties. If a certain quantity of the aqueous extract be subcutaneously injected into a frog a local action is immediately observed, the contractile power of the muscles becoming impaired. After a short interval the muscles contract, and the limb which has been injected becomes hard and rigid. Injected beneath the skin of a dog, it causes sharp pain, and sometimes, owing to its irritating local action, the formation of an abscess. A dose of from two to three centigrammes proves fatal to a frog in the course of three or four hours, and about ten times the quantity of the salts of thalictrin is required to produce the same effect. A dog is killed with quantities varying from two to four grammes when subcutaneously injected, but its toxic influence is much less when swallowed. The principal symptoms observed are general weakening of all the functions governed by the nervous system. The arterial pressure is lowered to an extreme degree, which is dependent, not on dilatation of the capillaries, but upon great diminution of the force of the cardiac impulses. The pulse becomes more frequent. The respiratory acts are also increased in number, yet no true asphyxia is perceptible, for the arterial blood remains red, and the relative amount of oxygen it contains is augmented rather than diminished. Indisposition to perform voluntary movements is observed, but the general sensibility is not generally much impaired. The nerves preserve their action on the muscles to the end of life, and the pneumogastrics continue to act upon the heart. The muscles preserve their irritability. Death appears to follow as the result of progressive weakness of the heart, respiration continuing frequently some time after the heart has ceased to beat, which shows that the centres presiding over the respiratory movements are not so profoundly affected as those which govern the cardiac movements.

MEDICAL OFFICERS (IRELAND) SUPERANNUATION.

A RETURN has been issued by the House of Commons consequent on a motion by Mr. Meldon, M.P., of all medical officers of workhouses and dispensaries in Ireland who since the passing of the Medical Officers' Superannuation Act have resigned their appointments and applied to their Boards of Guardians for superannuation; further, the causes for such resignations, their length of service as poor-law medical officers, and the result of their application to the Guardians. The return shows that since the passing of the Act in question 189 medical officers applied for a retiring allowance, and of these twelve were refused, the reasons assigned for the latter proceeding generally being that the Guardians were opposed to granting retiring allowances to any officer of the union, and sometimes because the applicant held other public appointments. Forty-seven medical officers, or one-fourth of the applicants, obtained the full retiring allowance of two-thirds of their salaries. In one instance, that of Dungannon Union, where the medical officer of the workhouse did not apply for superannuation, the Guardians of their own accord proposed and agreed that two-thirds of the salary should be granted to Dr. Ambrose Hunt.

PARASITIC EPILEPSY IN THE DOG.

A REMARKABLE form of disease in the dog was described by M. P. Mégnin at the meeting of the Société de Biologie on Feb. 5th. A number of dogs belonging to a gentleman near Havre, although of different races and coming from different sources, were affected with a disease which caused epileptiform convulsions and ultimately death, after several months. These cases of disease recurred, with similar characters, during several years, and all the dogs which he bought to replace those that died ultimately became affected by the disease. The yard was several times thoroughly disinfected, the walls limewashed, and yet the epidemic persisted without modification. A terrier thus affected was sent to M. Mégnin, who watched the dog carefully for eight days and observed the epileptiform attacks, and also the frenzied blows which it constantly gave to its ears. Examining the interior of these organs he found the external auditory meatus lined with a thick layer of cerumen, dotted with minute almost imperceptible white points, which were discovered, on microscopical examination, to be acari of the species described under the name of Chorioptes ecaudatus. This species of acarus was first described by M. Mégnin as met with only in the auditory canal of dogs, cats, and ferrets,

and he was aware that it was capable of causing attacks of frenzy, but had not observed that these might have an epileptiform character. The discovery of this parasite explains the remarkable contagious character of the epileptiform affection. The proof that the symptoms were really due to its presence was afforded by the fact that the repeated injection into the meatus of a solution of 5 per cent. of sulphide of potassium completely arrested the fits. M. Mégnin also showed, in confirmation of his conclusions, the ears of a rabbit which had died of an affection altogether similar to those which he had described. In the meatus was found another acarus, the Psoroptus longirostris, a species common to the rabbit and the horse, and which also causes in these animals a form of itch. As another illustration of the remarkable lesions caused by these parasites the foot of a cock was exhibited enlarged to four times its normal size by tubercular nodules, composed exclusively of stratified epidermic products. Under the deepest layers, in immediate contact with the corium, were myriads of the females of Sarcoptes mutans, engaged in depositing their ova. These acari do not cause furrows, and are not transmissible to the horse, or to the other mammalia, as has been asserted.

INTRA-PERITONEAL TRANSFUSION.

To obviate many of the difficulties and dangers of intravenous transfusion Ponfick has introduced a method of injecting defibrinated blood into the peritoneal sac, and has availed himself of the rapid absorption occurring from serous surfaces. His example has been followed by others, and Kaczorowski has recently published his results in the *Deutsche Med. Wochenschr.* He employed the method first in a case of puerperal septicæmia, and then in five other cases of anæmia and extreme exhaustion. He injected from 250 to 500 centimetres, and in one case repeated the larger quantity. In one case only was there no substantial result. The local reaction of the puncture, which he recommends should be done under antiseptic precautions, he found to be very slight, and even the entrance of pure air to be harmless. He recommends that intra-peritoneal transfusion should be practised in cases of protracted fever where there is threatened paralysis of the heart, and also in chronic anæmia without fever.

ON Tuesday, the 22nd inst., a large meeting of the Central Committee for the closing of Fulham Small-pox Hospital met at Albert-gate, Mr. Firth, M.P., in the chair, to consider what should now be done, as the managers of the Asylums Board intend to re-open the whole matter of the Hampstead Hospital case by the prosecution of the first appeal—viz., whether the hospital is itself a nuisance, or by its administration has become a nuisance to the neighbourhood. The Chairman and other speakers strongly condemned the new action of the Asylums Board, stating that they were now commencing legal proceedings for which again the ratepayers would have to pay without any chance of a successful result. A resolution was unanimously passed that the Central Committee should adjourn to that day fortnight, for the purpose of obtaining subscriptions to the guarantee fund to the amount of something like £5000, and that immediate legal proceedings should be taken to move for an injunction against the Fulham Small-pox Hospital as a dangerous nuisance, and to demand the closing of its wards.

WE have received the prospectus of a new quarterly journal, *L'Encéphale*, to be published in Paris under the direction of Professor Ball and Dr. Luys. It will be devoted to mental and nervous disease. The first number was to appear on the 24th inst.

A NORTHERN lay contemporary directs attention to the inferior position held by the Faculty of Medicine in the University of Aberdeen in the matter of bursaries and scholarships as compared with that enjoyed by the Faculties of Arts and Divinity respectively. Thus, connected with the Arts Faculty there are 258 bursaries, of the aggregate annual value of about £4423; and eight scholarships, value £695. In the Divinity Faculty there are 38 bursaries and two scholarships, the former worth £823, the latter £35. Last and least, attached to the Faculty of Medicine there are but 10 bursaries, of the aggregate value of £173, whilst a single scholarship of £20 is the only prize of this description to which a medical tyro can aspire.

THE movement for the establishment of a veterinary college in Dublin has of late been retarded, but the matter is at present engaging the attention of the Lord-Lieutenant; and it is stated that Dr. Lyons, M.P. for Dublin, has formulated a scheme which, if adopted, will meet the requirements of those who signed the memorial to his Excellency last December. What the memorialists desire is a college perfectly independent of the London institution, and which shall be not only a teaching, but also a licensing body.

MR. STANSFELD has lately addressed a meeting at Croydon in support of the scheme for enabling the working classes of the metropolis to obtain, on provident principles, medical aid for themselves and their families. We have frequently called attention to the strong and the weak points of this movement, and need not here repeat our comments. Resolutions in favour of the proposed enterprise being tried in Croydon were passed.

A COMMITTEE appointed by the Illinois State Health Board to investigate the condition of medical education in the State has recommended: (1) a strict preliminary education; (2) more clinical study; (3) three full years of study, one half of each year at least to be spent in a medical college; (4) a more rigid regard to the moral character of the applicants for admission to the profession.

IN accordance with the report made by the special examiners, Professors Huxley, Michael Foster, and Thistleton Dyer, no election has been made to the Biological Fellowship offered by University College, Oxford. Another examination will, therefore, be held in the same subject, probably not earlier than the end of the present year.

AN executive committee has been appointed, with the object of raising a testimonial to Professor Bain to commemorate his long connexion with the University of Aberdeen. The form of the testimonial is to be a portrait of the Professor, to be placed in the University, and the establishment of an annual gold medal as a prize in Philosophy.

THE Members of the Irish Graduates' Association celebrated St. Patrick's day in London at the Holborn Restaurant under the presidency of Dr. G. E. Paget, D.C.L., F.R.S. Many of the leading physicians and surgeons of London and others were present at the festival.

AN ardent supporter of cremation, M. Alfred Petit d'Ormoy, has recently died in France. Foreseeing that difficulties would be thrown in the way of cremation by the authorities, he directed that his body should be conveyed to Milan for that purpose.

THE managers of the Royal Infirmary, Edinburgh, have unanimously resolved to accept the offer of £24,500 made by the Town Council for the centre and western blocks of the old infirmary to be used as a fever hospital for the city.

THE veterinary school of Lyons has been temporarily closed in consequence of the riotous conduct of the students, who had organised an opposition to Professor Chaveau on account of his supposed clericalism.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Bournemouth.—Mr. Philip W. G. Nunn reports for this watering-place during 1880, in an estimated population of 13,000, a death-rate of twenty per 1000, and a birth-rate of thirty-three. The health-history of the year had been satisfactory, and characterised by the small amount of infectious disease in the place. It is gratifying to learn, in the interest of visitors, that considerable attention has been given to the sanitary condition of the hotels, and that the majority of them have had their drainage arrangements overhauled and placed in a condition which would satisfy the requirements of the model by-laws as to buildings issued by the Local Government Board. Still we are surprised to find that the sanitary administrative arrangements are still so imperfect that the system of tipping ash-refuse (often very offensive) in several parts of the district continues, and that large fixed ashpits are permitted. Mr. Nunn directs attention to the clearances of fir trees in and about Bournemouth, which has been going on for several years, without apparently any systematic attempts to supply the deficiency by replanting. He looks upon these trees as one of the greatest attractions of the place, also as playing a part in determining its celebrity as a health-resort.

Pontypool.—According to Mr. J. B. Mason the death-rate of this urban district, the population of which he estimates at 5100, was in 1880 15·8 per 1000 inhabitants. The health-history of the district during that year presented nothing for special note; but Mr. Mason records a parasitic disease, which he believes he has discovered in connexion with fluke in sheep, and which deserves a more detailed description than he devotes to it in his report, but which we give in his own words:—"I have condemned large quantities of mutton; in one case eighteen carcases, all very much in the same condition, owing to fluke in the liver. In most cases the meat appeared to the naked eye to be healthy and wholesome; but examination with high powers of the microscope revealed a wavy segmented parasite, occupying the sheath of the muscular fibre, leaving behind it a trail of minute eggs. After a deal of investigation I have associated this parasite with fluke in the liver. I believe meat or mutton so infested to be totally unfit for the food of man, and that this parasite may, in suitable cases, produce disease in man. I have had occasion to show this parasite to several medical officers of health, who agree with me entirely in its association with fluke."

Hitchin.—Mr. William Jenner, in his report for 1880, with reference to a sharp outbreak of scarlet fever, which appears to have been the chief disease event of the year, first takes his sanitary authority to task for not having provided an infectious disease hospital for the district. The want of a hospital crippled the efforts of the medical officer of health in endeavouring to stay the extension of the malady, and he writes very positively of the great use it would have been. The death-rate of the year was 22·4 per 1000 inhabitants, and the birth-rate 34·0 per 1000. Hitchin obtained the benefit of a constant water-supply in the course of 1880, but the distribution of the supply throughout the town is not yet quite completed. The drainage of the town was also materially improved.

Montrose.—Dr. S. Lawrence, in his report for this borough in 1880, estimates the population at 15,890 and returns a death-rate of 22·4 per 1000 inhabitants. He gives a pleasing picture of the advances which have been made in the sanitary condition of the borough in recent years. "Instead of a stinted there is now an abundant supply of excellent water, which, besides subserving domestic purposes, has permitted a long desiderated drainage system for the borough to become an accomplished fact; the prevention and removal of all nuisances is now more than ever an object of vigilant attention; facilities and attractive inducements to out-door recreations and exercises have recently been multiplied; in various quarters of the town antiquated, ill-constructed tenements have been removed, opening out freer space for light and air; and last, though not least, through the enterprise of intelligent and energetic citizens, a class of dwelling-houses has gradually sprung up vastly superior to those they are meant to replace or to supersede in all that pertains to sanitary conditions and arrangements." It remains now for the individual members of the community to give attention to the behests of personal hygiene. The local authority has done and is doing its duty; let the community personally do theirs, and Montrose may look forward to an even higher condition of health than it now enjoys.

Stroud (*Urban*).—Mr. Partridge estimates the population of this district in 1880 at 7608, and gives the death-rate for the year at 14·8 per 1000 inhabitants, the birth-rate at 36·1. The health history of the year was uneventful, but here is an illustration of small-pox diffusion. A tramp from Portsmouth enters the town, and sickens from small-pox in a lodging-house. He is removed, presumably for purposes of isolation, into an empty cottage near at hand; a man, the father of a family, is suffered to visit the invalid, in order to gratify his curiosity. This man "catches" the malady, and while he is ill a child of his, six weeks old, and who had been vaccinated only six days, is placed in the same bed with him. The child suffers from confluent small-pox and dies.

Dorking and Reigate.—Mr. E. L. Jacob's reports for these two districts show that no very special event characterised their health-history in 1880. *Dorking* (estimated population 16,350) had a birth-rate of 28·5 per 1000 inhabitants, and a death-rate of 13·4, and *Reigate* (estimated population 12,400) had a birth-rate of 34·0, and a death-rate of 16·5. An outbreak of diphtheria and accompanying throat-illness in the Reigate district, attacking twenty-five persons (twenty-two being children) and killing three, affords matter for more detailed comment in the report on the district. Milk infection might have played some part in the diffusion of the disease in two houses, the occupiers of which were cowmen, who continued their duties about the cows, including the milking, while the disease was in their families. The employer of one of these cowmen, a registered cowkeeper, was found to be unaware that diphtheria was one of the dangerous infectious diseases to which the prohibition of the Dairies and Cowsheds Order of the Privy Council applies, and Mr. Jacob conceived the notion that it would be well if the magistrates would take steps to make registered cowkeepers and dairymen of the district more fully acquainted with their duties under this Order of Council. But the magistrates, on the Sanitary Committee suggesting this view, took the simpler method of summoning the cowkeeper before them, and fining him £5 and costs.

Surbiton.—The death-rate of this urban district in 1880 is stated by Dr. Owen Coleman at 14·3 per 1000 inhabitants. The chief interest of Dr. Coleman's annual report rests in the brief account he gives of two outbreaks of diphtheria which occurred during the year, both of which were attributed to the dissemination of the contagion of the disease through milk, and both of which attracted attention outside the district at the time of their occurrence. Dr. Coleman is anxious to clear the sewerage of Surbiton of the imputation (made by some residents at the time) of having played a part in the outbreak of diphtheria, but he is evidently somewhat doubtful of his case, for he writes of the sewers only "as on the whole" good, and that "there is admittedly need for further ventilation of them"—very qualified approval, indeed, it must be said.

Chailey (*Rural*).—Mr. Richard Graveley reports a death-rate for this district, during 1880, of fourteen per 1000 of the estimated population. He has some thoughtful observations on the sort of houses in which so many of our poorer population live in rural districts, not so much "with a hope," he writes, "of remedying existing evils, but with a view of preventing others arising."

Okehampton (*Rural*), *Devon.*—Mr. Linnington Ash, although he has only held office a few months, in succession

to Mr. Wynter Blyth, has prepared a report for this district for the year 1880. He returns a birth-rate of 25·4 per 1000 of the population, and a death-rate of 16·0. Mr. Ash sketches for the information of his authority the course he proposes to take in the execution of his duties, and we may anticipate that his next annual report, by which time he will have become familiar with his district, will contain much matter of interest.

Bury St. Edmunds.—Mr. Winter Clarke reports for this ancient borough, in 1880, a birth-rate of 32·0 per 1000 of the population, and a death-rate of 21·7. He states that a great improvement has been effected during the year by the adoption of a plan of compulsory, regular, and systematic removal of house refuse, through the operation of which the overflowing ashbins, and disgraceful accumulations of the past, have vanished.

Helmsley, Rural. — Dr. Bruce Low reports for the Helmsley division of the rural district a death-rate of 19·1 per 1000 inhabitants, and a birth-rate of 31·7. He has some instructive observations upon the nursing of illegitimate children, and expresses regret that the Infant Life Protection Act does not bring every single nurse-child under observation. The district seems to be woefully behind hand in regard to excrement removal and privy accommodation.

INFECTIOUS DISEASES ON BOARD EMIGRANT SHIPS IN THE THAMES.

The Port Sanitary Authority of the Thames have issued a series of instructions for the guidance of the masters of emigrant ships in the Thames in case of infectious sickness appearing on board their vessels. The instructions give clear directions as to the diseases included under the term infectious, and the course to be pursued to remove them to hospital from the ship according as the vessel lies above or below Woolwich. They must prove eminently useful to the masters of these vessels in the difficult circumstances they are sometimes placed in by the appearance of an infectious disease among a number of persons about to put to sea, or who have been brought temporarily into the port.

WORKHOUSE MILK.

Two cases are reported, both the subject of judicial inquiry, of attempts to palm upon workhouse authorities diluted milk. In the one case, at the Toxteth Workhouse, no less than sixty-four parts of water had been added to the skimmed milk, and thirty-three parts to the new milk. A fine of £10 with costs was inflicted upon the dealer. In the other case, at the Salford Workhouse, 22 per cent. of water had been added. In this case a fine of 40*s.* with costs was imposed upon the dealer.

The Jarrow journals report a somewhat curious case heard in the Jarrow Police Court a few days ago. A medical practitioner in the borough was summoned before the magistrates for an infraction of the Local Improvement Act. He had notified to the sanitary authority a case of "infectious disease," and the authority appear to have contended that according to the Act he ought to have specified the nature of the disease as "small-pox, cholera, or fever." The answer to this seems to have been that the notifier had satisfied himself of the infectious character of the disease before he had ascertained its precise nature, and that he had thought he best met the object of the Act by giving immediate notice of this, and not in delaying until he could designate its precise character. On the other hand, the authority maintained that it was his duty to wait until he knew the disease he was dealing with, and, in effect, that it was of more importance to meet the verbal requirements of the Act than the object for which the verbal construction was intended. The medical officer of health was put into the witness-box to say that he had visited the case after he had received the notice, and that, in his opinion, it was one of typhus. It is not stated how this evidence was supposed to affect the notifier's statement that he had not recognised the particular nature of the disease when he notified its occurrence. The Bench dismissed the summons, stating that there was not evidence to show that it was possible that the notifier could define the disease as being small-pox, cholera, or fever, and the notification was therefore the best that could be given under the circumstances. The case seems to have been very ill-advised, and indicates that the Jarrow Act, as regards notification of infectious diseases, wants amending.

A deputation, headed by Mr. Stavely Hill, Q.C., M.P., had an interview with the President of the Local Government Board, on Tuesday, to advocate an amendment of the Public Health Act, admitting of qualified inspectors being appointed (by local authorities we presume) to guarantee by frequent inspection that the sanitary arrangements of every building are constructed and maintained in proper order. Legislation as to construction of buildings will have to be put in a very different position from that which it maintains at present before this detail of administration can be usefully considered, and it is to be regretted that the deputation did not first deal with the general subject. Moreover, it appeared to have chiefly in view good class houses.

A deputation has had an interview with the President of the Local Government Board to urge upon him the desirability of provision being made in London for the isolation of patients from scarlet fever who had reached the convalescent stage. The President intimated that the time for the consideration of such a question was exceedingly ill-chosen, on account of the difficulty in which the Board was plunged by the recent decision of the House of Lords in the Hampstead Hospital case, but he apprehended that sanitary authorities might make such provision if they so willed. Sir Rutherford Alcock, Dr. A. P. Stewart, and others were among the deputation.

Dr. MacCabe, Local Government Board Inspector, in a recent inspection of the North Dublin Union Workhouse, states that it is not adequate to the requirements of the Union. The real accommodation, after setting apart a proper proportion of day-rooms, will provide beds for 2079 inmates; but during the six months ending December 31st, the average number daily resident has been 2210.

The Town Council of Southport have under serious consideration the system of sewerage existing in the town. When first established the influence upon the health of the inhabitants was very marked, the amount of sickness falling very considerably. But it is defective in several respects, and it has become desirable that a skilled engineer should be consulted upon the system generally.

The Manchester Corporation have applied to the Local Government Board for a further loan of £100,000 to carry out various improvements in the city, and in connexion with privy accommodation. Mr. C. N. Dalton, barrister-at-law, one of the inspectors of the Board, held an inquiry in the town-hall, Manchester, concerning this application a few days ago.

A Bill has been introduced into Parliament by Mr. Walter James and Mr. Bryce to amend the Metropolitan Spaces Act (1877), by giving power to trustees and others to transfer certain open spaces and disused burial-grounds to the local authorities, for public use as open spaces, and providing for the expenses of such transference and the maintenance of the grounds for public use.

The Withington Local Board contemplates taking action against the Rusholme Local Board under the Rivers Pollution Prevention Act for polluting certain streams running through their district.

The Lord Advocate and Home Secretary have brought a Bill into Parliament to enable parochial boards in Scotland, with the consent of the Board of Supervision, to grant superannuation allowances to their officers.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

Mortality in the large English towns showed a marked decline last week, and was lower than it had been in any week since the middle of December last. In twenty of the largest English towns, estimated to contain in the middle of this year nearly a third of the entire population of England and Wales, 5576 births and 3001 deaths were registered last week. The births exceeded by 390, while the deaths were 256 below, the average weekly numbers during 1880. The deaths showed a decline of 351 from the number returned in the previous week, and were equal to an annual rate of 20·6 per 1000, against 23·0 in each of the two preceding weeks. The lowest death-rates in the twenty towns last week were 15·9 in Brighton, 16·4 in Hull, 16·5 in Plymouth, and 17·3 in Birmingham. The rates in the other towns ranged upwards to 22·2 in Oldham, 23·8 in Man-

chester, 25·4 in Liverpool, and 26·5 in Wolverhampton. During the first eleven weeks of the current quarter the death-rate in the twenty towns averaged 24·2 per 1000, against 25·6, the average rate in the corresponding periods of the five years 1876–80.

The deaths referred to the principal zymotic diseases in the twenty towns, which had been 290, 296, and 311 in the three previous weeks, declined to 287 last week, the lowest weekly number in recent years. These 287 deaths included 66 from whooping-cough, 56 from measles, 46 from scarlet fever, 44 from small-pox, and 41 from fever, principally enteric. The annual death-rate from these principal zymotic diseases averaged only 2·0 per 1000 in the twenty towns, and ranged from 0·0 and 0·3 in Plymouth and Hull, to 2·5 and 3·1 in Liverpool and Newcastle-upon-Tyne. Scarlet fever showed the largest proportional fatality in Leicester, Portsmouth, and Newcastle-upon-Tyne; and whooping-cough in Bradford and Liverpool. Nine of the 11 deaths from diphtheria in the twenty towns occurred in London. The death-rate from fever (principally enteric) showed an increase upon the low rates in recent weeks, and was highest in Leicester, Newcastle-upon-Tyne, and Manchester. Small-pox caused 46 more deaths in London and its outer ring of suburban districts, and one in Liverpool (of a coloured seaman recently landed from New York), while no fatal case was recorded in any of the eighteen other provincial towns. The number of small-pox patients in the Metropolitan Asylum Hospitals, which had steadily increased in the twenty preceding weeks from 77 to 792, further rose last week to 853, which is a higher number than has been under treatment in these hospitals at any time since April, 1878. The new cases of small-pox admitted to these hospitals, which had been 195 and 186 in the two previous weeks, rose to 265 last week, considerably exceeding the number in any recent week.

The deaths referred to diseases of the respiratory organs in London were 345 last week, and were 109 below the corrected average number in the corresponding week of the last ten years; 217 resulted from bronchitis, and 77 from pneumonia. The annual death-rate from lung diseases, exclusive of phthisis, was equal to 4·9 per 1000 in London last week; while the rate from the same diseases in Liverpool was 5·8.

The causes of 76, or 2·5 per cent., of the deaths in the twenty towns last week were not certified, either by a registered medical practitioner or by a coroner. The proportion of uncertified deaths did not exceed 1·8 per cent. in London, while it averaged 3·2 per cent. in the nineteen provincial towns. No uncertified causes of deaths were registered last week in Bristol, Leicester, or Sunderland; while their proportion was largest in Oldham, Leeds, and Sheffield.

HEALTH OF SCOTCH TOWNS.

In eight of the largest Scotch towns, the annual death-rate averaged 23·1 per 1000 last week, against 22·9 and 23·4 in the two preceding weeks; this rate was 2·5 above the average rate in the twenty large English towns. The rates in the eight Scotch towns ranged from 14·7 and 15·9 in Leith and Greenock, to 25·3 and 33·9 in Glasgow and Paisley. The deaths referred to the principal zymotic diseases in the eight towns, which were 83 and 82 in the two previous weeks, rose to 97 last week; they included 31 from whooping-cough, 17 from diarrhœa, 15 from diphtheria, 13 from scarlet fever, 12 from "fever," 9 from measles, and not one from small-pox. The annual death-rate from these zymotic diseases was equal to 3·8 per 1000; this rate ranged from 3·0 and 3·3 in Aberdeen and Dundee, to 4·5 and 5·3 in Edinburgh and Paisley. The 31 fatal cases of whooping-cough included 17 in Glasgow, 6 in Edinburgh, and 5 in Dundee. The 15 deaths referred to diphtheria exceeded by 2 those in the previous week. Of the 13 deaths from scarlet fever, 5 occurred in Edinburgh and 4 in Glasgow. The deaths referred to "fever," which had been 6 and 10 in the two previous weeks, further rose to 12 last week, of which 6 occurred in Glasgow and 2 in Edinburgh; the annual death-rate from "fever" in the Scotch towns was last week nearly twice as high as the average rate from the same cause in the twenty English towns. Eight of the nine deaths from measles occurred in Glasgow. The deaths referred to acute diseases of the lungs, which were 179 and 168 in the two preceding weeks, further declined to 164 last week.

HEALTH OF DUBLIN.

The rate of mortality in Dublin, although still excessive, showed a further decline last week. The annual death-rate in the city, which had slowly but steadily declined from 47·4 to 33·8 in the seven preceding weeks, further fell to 30·4 last week. During the past eleven weeks of the current quarter the death-rate in the city has, however, averaged no less than 38·9 per 1000, against 24·2 in London and 22·4 in Edinburgh. The 194 deaths in Dublin last week showed a further decline of 22 from recent weekly numbers, and included but 11, or less than 6 per cent., which were referred to the principal zymotic diseases, against 21 and 23 in the two previous weeks. These 11 deaths from zymotic diseases included 4 from fever (including typhus, enteric or typhoid, and simple continued), 3 from whooping-cough, 2 from scarlet fever, 2 from small-pox, and not one from measles, diphtheria, or diarrhœa. The annual death-rate from these zymotic diseases did not exceed 1·7 per 1000 in Dublin last week; against 2·4 in London, 3·8 in Glasgow, and 4·5 in Edinburgh. The deaths referred to fever in Dublin showed a marked decline from recent weekly numbers, but the annual death-rate from this cause was more than twice as high as the average rate from the same cause in the twenty large English towns. Two fatal cases of small-pox were reported against but 1 in the five preceding weeks. The recorded deaths from whooping-cough and scarlet fever scarcely differed from those in the previous week. The deaths of infants, although slightly more numerous, were below the average; and those of elderly persons were fewer than in any previous week since the first of the year.

THE HUNGARIAN CENSUS.

The results of the Hungarian Census, which was taken on 1st December last, have just been officially published at Pesth, and show that the population of Hungary with Croatia, which was 15,417,327 in 1870, is not now more than 15,610,729. This shows an increase of only 193,402, or considerably less than one per cent. in the ten years. This slow rate of increase contrasts in a striking manner with that which prevailed in the German empire, where the increase of population during the five years 1875-80 was no less than 5·8 per cent. The Hungarian figures are undoubtedly surprising, more especially when the high birth-rate in that country is borne in mind, and they are said to have excited considerable sensation in Buda-Pesth. As might be expected, nearly the whole of the small increase during the past ten years is shown in towns, and it follows that the population of the greater part of the country, which is rural, has been stationary, if it has not actually declined. Various reasons are assigned for this signal check to the increase of population during the past ten years; among others, frequent outbreaks of cholera and epidemic fever, a succession of bad harvests, with floods and other natural calamities, which have more or less contributed to a considerable increase in the rate of emigration. One of the noticeable features of these Hungarian figures is that the excess of females in the population is comparatively small. At the recent census there were rather less than 103 females to each 100 males. This inequality is very much smaller than that which prevails in England, where the proportion in 1871 was 105 females to each 100 males. It appears, however, from the Prussian census, the results of which have just appeared, that the proportion of females in that population did not exceed 103·2 to each 100 males on 1st December last.

HEALTH MATTERS GENERALLY AT HOME AND ABROAD.

THE ROYAL PORTSMOUTH, PORTSEA, AND GOSPORT HOSPITAL.

A report is published in the *Portsmouth Times and Naval Gazette* of an inquiry made at the request of the Admiralty by Lieut. Col. Percy Smith, R.E., into the water-supply, ventilation, and drainage of the Royal Portsmouth, Portsea, and Gosport Hospital. The report is of special interest, because it is accompanied by a series of marginal comments, inserted, our contemporary states, by the Chairman of Committees of the Hospital at the request of the Committee of Management. Colonel Smith's inquiry disclosed so many and such grave defects in the structural arrangements of the hospi-

tal, that, notwithstanding the Managing Committee appear to have carried out very generally his recommendations, the question is suggested, should not the whole building be given up and a new one built upon approved principles? It is evident from Colonel Percy Smith's description that the wards, with scarcely an exception, are not adapted, according to modern notions, to the uses and accommodation for which they were designed, and the statement of the Committee that they are never fully occupied as a sort of apology for their continued use, serves to confirm the impression got from the report that a new hospital is needed. The defects which Colonel Percy Smith describes in the arrangements for the water-supply, the drainage of waterclosets, baths, sculleries, slop-sinks, and of the drainage generally, are those peculiar to a hospital built nearly forty years ago, and many of these defects have been remedied. But it is evident that no tinkering can bring about proper ventilation of the wards, and we are quite unable to understand the comment of the Committee of Management upon Colonel Percy Smith's recommendation that the system of drainage of the hospital should be cut off from the town-sewer, by an intercepting chamber freely open to the outer air and with an S-trap on the sewer side—to wit, "This has not been done because of the diversity of opinion in regard of its desirability." Is it possible that a doubt on this matter exists within the limits of England, and almost within the shadow of Netley?

THE PLAGUE.

Further particulars received from the Levant enable us to form a pretty definite notion of the locality in which plague has again appeared in Mesopotamia. Information, however, respecting the outbreak comes in slowly, very slowly indeed, but the news is confirmed, and there is reason to fear that cases have been more numerous and more fatal than hitherto reported. The outbreak appears to have taken place within the district lying to the south of the Hindieh marshes and having the old bed of the river Euphrates on the east, the sea of Nedjef on the west, and the Shat el Atchan on the south. By means of cordons round the infected localities, also a cordon round the whole of the infected district, and quarantine stations established on the various routes of water communication with the districts to the East, the Ottoman Government is endeavouring to prevent the spread of the malady out of the infected area. Russia is also preparing to take measures of precaution in the Black Sea and Caspian Sea; Egypt has established quarantine against Syrian ports and ports in the Persian Gulf for ships coming thence with sickness on board, and the Italian Government has instituted a medical observation of ships coming from both Ottoman ports and ports in the Persian Gulf. Dr. Cabiadis, whose name is familiar in conjunction with plague in Mesopotamia, has been despatched by the Ottoman General Board of Health to the scene of the recent outbreak.

Typhoid fever is reported to be very prevalent in Goulburn, New South Wales.

THE SERVICES.

ARMY MEDICAL DEPARTMENT.—Brigade Surgeon Charles Carroll Dempster is granted retired pay, with the honorary rank of Deputy Surgeon-General; Brigade Surgeon Sampson Roch has been granted retired pay, with the honorary rank of Deputy Surgeon-General; Brigade Surgeon John Meane is granted retired pay, with the honorary rank of Deputy Surgeon-General; Surgeon-Major Joseph Gray, African Medical Service, has been granted retired pay, with the honorary rank of Brigade Surgeon.

Surgeon-Major R. Clifton, and Surgeons Le Motte and Chester have been detailed for duty with the 14th Hussars proceeding from India to the Transvaal.

Surgeon Dod, A.M.D., embarked on board the transport *Holland*, on the 22nd inst., in medical charge of a battery of artillery and drafts ordered to the Transvaal.

VACCINATION GRANTS.—The following gentlemen have received the Government grant for efficient vaccination in their respective districts: Mr. William Henry Latham, Congleton Union (second time). Mr. Linnington Ash, Holsworthy, N. Devon.

THE HOMERTON SMALL-POX HOSPITAL.

THE following are the conclusions of the Sanitary Committee of the Hackney District Board of Works on the Homerton Small-pox Hospital:—

"1. Your Committee have to report that, with the Medical Officer of Health, they visited the Small-pox Hospital, Homerton, and the adjoining neighbourhood, on Wednesday, December 29th. They carefully observed the approaches to the hospital, and consider them to be highly objectionable, especially that now used—viz., College-lane—on account of its narrowness and contiguity to the Homerton College Schools. They were informed by the Medical Officer of Health that boys, especially those attending at the Homerton College School, have occasionally ridden behind the ambulances while passing down College-lane. The Committee therefore consider that some means should be taken to prevent this practice in future by an alteration of the vehicles.

"2. The Committee would also point out another source of danger to the inhabitants of the neighbourhood arising from the ambulances being compelled to stop outside the gates during the time occupied by the porter or his wife in coming from the lodge. During this interval children frequently gather round the vehicles, and may thus become infected. In the opinion of the Committee this should be forthwith remedied by the present gates being always left open during the day, and inner gates erected within the hospital grounds.

"3. The interior arrangements, as regards the delivery of stores, are most objectionable, as tradespeople have to enter the hospital grounds, passing close to the windows of the wards, and deliver their goods either at the door of the stores or at the end of one of the corridors. The Committee saw soap being delivered from a van into the corridor by a man and a young lad, the latter of whom went inside the building repeatedly. The laundry is placed opposite to this corridor, and is ventilated almost directly into the street, which the Committee consider should be altered. The Committee have been informed that *employés* engaged in the delivery of goods from contractors have suffered from small-pox, showing that the Committee's objections to the position of the stores are well founded.

"4. The Committee also strongly object to the residences of the Medical Officer and Steward being situated in the centre of the hospital premises, and opposite to the Fever Hospital, as visitors and tradesmen going to these houses, as well as to the stores, are exposed to infection. They consider that these residences as well as the stores should be built in such a position as to admit the persons entering them from the public highway. The Committee would also point out the proximity of the mission-house to the hospital.

"5. After visiting the hospital the Committee went to Brooksby's-walk, carefully viewed the position of the houses, and are unanimously of the opinion that the houses Nos. 41 to 59 inclusive, and the mission-hall, which abut on the small-pox hospital, should be purchased by the Asylums Board and the former removed.

"6. Pending these alterations, the Committee are unanimously of opinion that the wall adjoining Brooksby's-walk, and that bounding the footway in the Grove, should be raised to a uniform height of 12 ft. at least, as the air from the open ventilators of the wards and laundry is at present directed at such an angle as to be carried over the last-mentioned wall, and the gardens of some of the houses in Brooksby's-walk abut on the hospital wall. These arrangements, in their opinion, are highly objectionable, as the windows in the end of the wards are within 24 ft. of the wall abutting on the Grove, and the mortuary is within 11 ft. of some of the gardens.

"7. The Committee are also of opinion that the best entrance to the hospital would be obtained by the managers of the Asylums Board purchasing a slip of ground from the Guardians of the City of London, so as to allow the patients to enter by the large gates of the Union Workhouse (which the Committee are informed are not now used), and pass along a passage between high walls leading into the hospital grounds. These outer gates could always be left open during the day, if a porter were kept in attendance near them, and a second porter were placed at the present lodge. The ambulances could then be admitted without delay or danger to the inhabitants of the neighbourhood, and without risk of infection to the friends of and

visitors to the patients, who at present often stay outside the gates gossiping or making inquiries from the porter whilst an ambulance is passing by. This source of danger would be avoided by the plan recommended, as it would provide a separate entrance for visitors, and also enable the ambulances to pass along College-street, which is comparatively wide, instead of College-lane.

"8. If the entrance through the City of London Union grounds could not be obtained, a much safer means of access to the hospital than the present could be procured by pulling down two houses in High-street, Homerton, so as to open up Albert-street, which is about three times as wide as College-lane.

"9. The Committee consider that the present arrangements, which necessitate the use of the same entrance by small-pox and fever patients, and the passage of the latter through the small-pox hospital grounds, are decidedly objectionable, and would point out that a new entrance can be readily obtained from the Clifden-road. They are also of opinion that it is of the utmost importance, especially to persons residing in the vicinity of the hospital, that the number of patients in future admitted to the small-pox hospital should never exceed the number for which it is certified —viz., 102.

"The Committee finally desire to state their conviction that if the alterations recommended be carried out, the advantages arising from the presence of a hospital for the treatment of infectious diseases would, to a considerable extent, counterbalance the disadvantage arising from its present position."

Deaths from Small-pox in Hackney District, 1871-80: a statement prepared by the Medical Officer of Health (Dr. Tripe) and submitted to the Metropolitan Asylums Board by a deputation of the Hackney Sanitary Committee, 20th March, 1881:—

In Albert-street, Brooksby's-walk, College-street, College-lane, Farm-place, Holmbrook-street, Templar-road, and the Grove, being the streets nearest to the Small-pox Hospital, the deaths from small-pox amounted to 93 in ten years amongst 2314 people, and there were also 277 cases reported to me from these streets. These deaths give an annual death-rate of 4·1 deaths per 1000 population. In the streets within a quarter of a mile radius, in front and at the sides of the hospital, there were 167 deaths and 625 cases reported in the ten years amongst a mean number of 6823 inhabitants, giving an annual death-rate of 2·45 persons per 1000 population. Amongst 30,171 residents of the other small houses, occupied by poor persons, which are inspected annually, after deducting the deaths in, and population of, the above-mentioned streets, there were 484 deaths and 1745 cases, which give a death-rate of 1·6 deaths annually per 1000 population. The death-rate from small-pox amongst a mean population of 119,400 persons residing in the rest of the district was only 0·21 per 1000 population per annum, 261 deaths only having been registered amongst them in the ten years. The death-rate was 0·58 per annum per 1000 population for the whole district. These figures are necessarily calculated on the deaths, as cases in respectable houses are rarely reported to me, and the calculations would consequently be misleading. If all deaths in hospitals assigned to Hackney, or for which no addresses are given, had been included, a larger percentage of deaths in the poorer streets would have been shown. I was unable to assign fifty-three deaths in hospitals to the localities from which the patients had been removed, as their place of abode was not stated, but if these were added the annual death-rate would be 0·64 instead of 0·58 per 1000. The cases per 1000 population per annum in the ten years were as follows:—In the streets around the hospital 12·0; in those within a quarter of a mile radius in front and at the sides, in the other small houses, 5·8 per 1000 population. The number of deaths from small-pox in 1861–70, after allowing for those removed to the Highgate Hospital, was 173, which gives an annual death-rate of 0·167 per 1000 for the whole district. There were 15 deaths within the quarter of a mile radius, which, with 3 added for proportions removed to Highgate Hospital, gives 0·264 per 1000 population, against 2·45, or nearly ten times as many as in 1871–80. The proportion of deaths in the quarter of a mile radius in 1861–70 to the total deaths from small-pox was nearly 116 to 10, whilst in 1871–80 it was 412 to 10, or more than three times as many, showing that the inhabitants of these streets suffered to a far greater extent, as compared with the rest of the district, in 1871–80 than in 1861–70.

The following is a summary of the distribution of deaths in Hackney in the period 1871–80:—Deaths in streets adjacent to the Hospital, 4·1 per 1000 population; 164 deaths in streets situated within a quarter-mile radius of Small-pox Hospital = 2·45; 484 deaths amongst 30,177 poor persons living in other small houses = 1·60; 261 deaths amongst 119,400 population, excluding poor population and deaths = 0·21; 912 deaths amongst total population (total deaths) = 0·64.

In the period 1861–70 the total deaths in the same district from small pox = 0·167 per 1000; deaths within a quarter-mile radius of the Small-pox Hospital = 0·264. It is to be noted that the Hospital was not open during any part of the ten years 1861–70.

	Deaths from Small-pox.			Per 100,000 population.
1861–70	... ...	London	... ...	28
,,	... ...	Hackney	... ...	17
1871–80	... ...	London	... ...	46
,,	... ...	Hackney	... ...	64

MEDICAL NOTES IN PARLIAMENT.

IN the House of Lords on Thursday, the 17th, the Alkali Works Regulation Bill was read a third time and passed, as was also the Rivers Conservancy and Floods Prevention Bill.

The New Vaccine Establishment.

In the House of Commons, on Thursday, the 17th inst., in reply to Sir Trevor Lawrence, Mr. Dodson stated that Dr. Cory had been appointed medical director of the National Vaccine Establishment.

On Friday a petition was presented from Dreghorn for an alteration of the law relating to Scotch medical relief. Fifteen petitions from London and provincial towns were presented in favour of the prevention of vivisection. The annual Metropolitan Police report with regard to the working of the Contagious Diseases Acts was presented. On the motion of Viscount Lymington a return was ordered of the number of adult male paupers in England who had been members of friendly societies. In Committee on the Navy Estimates, a vote of £65,969 was agreed to for medical establishments at home and abroad, and a vote of £70,460 for medicines and medical stores, &c. The Alkali Works Regulation Bill was brought down from the House of Lords, and read a first time.

On Monday the annual return under the Lunacy Regulation Act, 1862, was laid upon the table. The second reading of the Vivisection Abolition Bill was deferred to May 11th. Mr. Puleston gave notice that he will move the rejection of the Alkali Works Bill, and Sir Sydney Waterlow gave notice that he will move that the Bill be referred to a Select Committee.

Army Medical Department.

Mr. Findlater asked the Secretary of State for War whether, having regard to the cases of wounds and sickness which had occurred amongst medical officers during recent campaigns, he would take into consideration the justice of extending to the Army Medical Department the privilege now enjoyed by all combatant officers of counting as full-pay service towards retirement any time on half-pay, not exceeding one year, when such half-pay had been necessitated by sickness incurred in and by the service; also such half-pay as resulted from the reduction of the department, not exceeding two years, as laid down in Army Circulars, March 1st, 1880. Mr. Childers said he feared he could not undertake to lay down the broad proposition that non-combatant officers were to have all the advantages of combatant officers, unless the converse be also accepted—that they were to have all the disadvantages. The regulation as to the retirement of medical officers had been so recently settled that he could not undertake to re-open the question, but when he had more leisure he would look into it.

Belfast Workhouse.

Mr. Biggar put a long series of questions with regard to the management of the Belfast workhouse, one of which was founded upon the assumption that the Local Government Board had allowed the schoolrooms to be converted into hospitals. Mr. Forster, after replying to the questions of

workhouse management, stated that the inmates were well supplied with bedding and clothing, and the house was free from epidemic disease. The assumptions of the hon. member were not correct, and he saw no reason for altering the constitution of the Local Government Board.

On Tuesday a petition was presented from the grand jurors of the South Riding of the county of Tipperary, for inquiry into the subject of butter adulterations.

The Hampstead Hospital Case.

Mr. Firth asked the President of the Local Government Board whether the decision arrived at by the Metropolitan Asylums Board on Saturday last, to continue legal proceedings in the Hampstead Hospital case, had the sanction and approval of the Local Government Board; and whether the estimated cost of the legal proceedings already incurred, and at present paid or payable by the Metropolitan Asylums Board out of public funds, exceeds £20,000. Mr. Dodson replied that the approval of the Local Government Board was not requisite for the proceedings referred to, but he had no hesitation in saying that he had expressed his acquiescence in the decision of the managers, not to abandon the second appeal. He had no information as to the estimated cost of the proceedings. Mr. Firth thereupon gave notice that, in consequence of the answer of Mr. Dodson, he should oppose the clause in the Metropolitan Board of Works Money Bill which proposed to lend £50,000 to the Metropolitan Asylums Board.

The London Lock Hospital.

Mr. Hopwood asked the Secretary of State for War whether his attention had been called to the doubt which existed, whether the certifying of the London Lock Hospital, and the detention of patients therein under the Contagious Diseases Acts, 1866-9, was legal, inasmuch as that institution was not situated in any "place" to which those Acts apply. Mr. Osborne Morgan answered the question, which, he said, was a purely legal one. He did not feel that the doubt was well founded. The Acts in question authorised the Secretary of State for War, or the Admiralty, "to provide and certify for hospital purposes any building without any restriction as to place;" and he did not think that these general words could be taken to be restricted by the prior clause in the Act, confining the operation of the Act for police purposes to certain specified areas. He must add that that interpretation of the Act was fully borne out by the way in which the schedules were framed.

Animal Lymph.

Mr. P. A. Taylor asked the President of the Local Government Board if he could state to the House the source whence the new animal lymph is to be obtained—that is, whether the calves are now inoculated from a diseased horse or from a human being suffering under small-pox, or from what other source. Mr. Dodson replied that the Medical Department hoped to commence their series of calf vaccination from a well-ascertained case of spontaneous cow-pox. If such lymph could not be obtained the Board would commence their series from the well-known lymph at the Hague or Brussels station, where it had long been in use.

During the debate on Mr. Chaplin's motion concerning imported cattle disease, Dr. Lyons took the opportunity to make a strong appeal to the Government to establish in Ireland a veterinary college, which would enable veterinary students to be educated and trained in the country instead of having to go to London, Edinburgh, or Glasgow, as at present. Dr. Lyons stated that this subject had been unsuccessfully agitated by Irish members for the last fifty years.

On Wednesday a petition for inquiry into the East India Army Medical Department was presented from William H. Harris. A petition of the registered medical practitioners in Ireland was presented in favour of an alteration of the Medical Acts. Sir R. Cross gave notice that on Tuesday next he will move for a Select Committee, to consider the working of the Artisans' Dwellings Acts.

On Thursday Mr. P. A. Taylor gave notice of a further question to Mr. Dodson on the subject of vaccination—viz., whether in view of the increase of mortality through the use of bad lymph, the Government would bring in a Bill to abolish compulsory vaccination.

Small-pox in Kent.

Mr. Ross asked the President of the Local Government Board whether his attention had been called to an outbreak of small-pox in Boxley parish, Hollingbourne Union, Kent, where, apparently from the medical attendant not having taken precautions to isolate the case, five other cases had since occurred (one ending in death), which were traceable to infection caught from the said case. Mr. Dodson, who was most indistinctly heard in the gallery, said his attention had been called to the matter, and from inquiries he had made it appeared that a labouring man, being taken with small-pox, his medical attendant ordered his removal to the hospital. His wife was then attacked, and died after giving birth prematurely to a child. Two relatives who attended the funeral were also attacked by the disease, but in the mildest form. A competent nurse was procured for the man and his wife, and the usual precautions, including the free use of disinfectants, were taken to prevent the disease spreading by the directions of both medical men who attended, neither of whom, in his opinion, was to blame.

Correspondence.

"Audi alteram partem."

THE BIRMINGHAM HOSPITAL FOR WOMEN.

To the Editor of THE LANCET.

SIR,—You have been good enough to copy a report of my speech from the *Birmingham Daily Gazette* and to allude to it as a "mass of nonsense," and further to assume ignorance on my part of the literature of diseases of women. I am quite prepared, however, to abide by what I said as perfectly correct. The statistics of our operations for the removal of *ovarian tumours* are better by far than those of any hospital statistics yet published, and I challenge you to show that this is nonsense. The case of cholecystotomy, recently published, and some of hepatotomy shortly to be published, amply justify what I have said about the hospital doing work never attempted before in any institution, and only once previously in private, and then not successfully.

The insinuation at the end of the paragraph that we perform operations which are not legitimate is hardly a worthy one for the leading medical journal to make. In another part of your issue you speak of "spaying" as an operation still *sub judice*, and that is the only operation upon which your insinuation can be directed. We are giving it a trial, and have at least established the conclusion that it can be justified by a low mortality, and that is more than has been done anywhere else. Whether it will be further justified by its ultimate results yet remains to be proved, though I am quite satisfied it will, and I cannot help feeling that such a paragraph as yours can only tend to excite prejudice, and prevent the formation of a fair conclusion.

I am, Sir, yours, &c.,

Birmingham, March, 1881. LAWSON TAIT.

*** We are sorry to find Mr. Tait unable to disclaim the paragraph quoted in last week's LANCET. In proof of our statement that operations are done elsewhere with success at least equal to that obtained at the Birmingham Hospital for Women, we would quote Marion Sims, who in April last wrote as follows: "Keith has cured of his last hundred cases (ovarian tumours) ninety-seven per cent., seventy-three of these in succession without a single death."—ED. L.

EMPYEMA AND ITS TREATMENT BY FREE INCISION, IRRIGATION, AND ASPIRATION.

To the Editor of THE LANCET.

SIR,—I aimed at being just and not severe in my criticism of Mr. Moxhay's paper. He certainly stated that he was likely the first to adopt Fraentzel's method in this country, but as he disclaims pretension to priority in his letter, I willingly pass this over.

Mr. Moxhay may be assured that I read Fraentzel's article on Pleurisy, and while I admire the soundness of his opinions on most points, I confess my inability to concur with him always. Fraentzel holds that a pneumothorax is impossible without the admission of external air. Dr. Markham Skerritt and others demonstrated years ago that gas could

and did accumulate without such admission, and I have verified pathologically that this is decidedly correct.

Mr. Moxhay says he may have introduced germs through injecting water; now this is what I object to. Would Lister do this? and, if not, why does Mr. Moxhay persist in murdering the expression, "perfect Listerian precautions"? Does he forget how Dr. W. Roberts, in his celebrated experiments, found that by injecting five drops of hypodermic solution of morphia into one of his flasks of steralised beef-tea he could produce full putrefaction in forty-eight hours? But Mr. Moxhay even asserts that water at 100° to 103° Fahr. may have destroyed, or rendered harmless, these micro-organisms. This, however, is a *principii petitio*. I would refer him to the literature of the subject, and he shall find that, although they are neither Zulus nor Boers, yet they are unwilling to die without a struggle. The above temperature would rather favour their development. Dallinger and Drysdale have shown that while 104° Fahr. suffice to kill adult septic monads, their spores are capable of germinating after subjection to a heat of 300° Fahr. for ten minutes (W. Roberts). Now, although no harm resulted through injecting water in Mr. Moxhay's case, it does not follow that his proceeding is universally applicable; if this were so, then the principle on which Listerism is founded would be made assailable.

I never objected to a free opening—quite the contrary. It is to the proceedings with which "free opening" is associated that I object.

Mr. Moxhay will please observe that "empyema proper" and "circumscribed empyemic abscess" are surgically similar and proper. We have now more definite information about the case though. There were clearly two collections of pus encapsuled by false membranes, and this fact of itself goes to teach us how we should explore the pleural sac in such cases, and break up, as far as possible, all intersections early.

I am, Sir, your obedient servant,

Lichfield, March 14th, 1881. JOHN LOWE.

CATGUT LIGATURE IN THE TREATMENT OF ANEURISM.

To the Editor of THE LANCET.

SIR,—Having had some experience in the ligature of arteries with catgut, may I ask for space in your columns to add my mite to the discussion which is now going on *à propos* of the paper recently communicated by Messrs. Treves and Macarthy to the Medical and Chirurgical Society?

Mr. Treves's case was one in which the carotid and subclavian arteries were both tied in the same patient for innominate aneurism, the carotid first by Mr. Adams, the subclavian, three weeks later, by Mr. Treves. Mr. Macarthy's was one in which the subclavian was tied for axillary aneurism, and amputation at the shoulder-joint became necessary from bursting of the tumour two months afterwards. Both patients died; the first one hundred and eight days after the ligature of the carotid, the second sixty-four days after ligature of the subclavian. Of the three arteries tied only one was permanently obliterated, the other two became pervious after a time, although with considerable narrowing of the channel. Antiseptic treatment was adopted in all three, and answered perfectly in two—viz., Mr. Adams's carotid case and Mr. Macarthy's subclavian case, both wounds uniting rapidly by first intention. It failed in Mr. Treves's case, in which the wound opened and suppurated freely; and this was the only one of the three in which the artery was permanently obliterated.

The inference sought to be drawn from these cases is that rapid and immediate union may be injurious by not exciting sufficient inflammation and effusion around the vessel—the repair being, in fact, too perfect; whereas when there is suppuration greater thickening and solidification will be ensured. It is against this doctrine, which I consider to be illogical and misleading, that I write to protest. It seems clear to me, from the account given, that the two failures arose from the ligature not being effectually applied; and the one success was obtained, notwithstanding the disadvantage of the suppuration, because the vessel was thoroughly secured. Mr. Barwell pointed out in THE LANCET for March 5th that Mr. Adams and Mr. Macarthy used a double and then a single hitch in tying their knot, while Mr. Treves used a single hitch, repeated in the usual manner. This probably had some influence on the result, as the double hitch is *clumsy*, and difficult to draw tight as well as to maintain at the required tension while the second hitch is being tied; consequently the inner coats were completely cut through in Mr. Treves's case, but only very incompletely so in the other two. This seems to me to be clearly shown by the description, the inner coat in those two cases being uninterruptedly continuous from the proximal to the distal part of the vessel. This incomplete division of the inner coats was probably the cause of the entire absence of coagulum, which is such an important factor in the process of repair.

My own experience of the catgut ligature has been uniformly satisfactory. I have used it on the femoral artery nine times, on the external iliac twice, on the carotid artery three times, on the common femoral once, and on the brachial, radial, and ulnar each once. In none has there been secondary hæmorrhage, failure to obliterate the vessel, or other mishap. Some of the wounds have suppurated freely; latterly they have all healed by first intention under antiseptic treatment.

I look upon this result as dependent upon the special care which I have always taken to thoroughly divide the inner coats, and to observe that the first hitch does not slip while the second is being drawn tight, and I always add a third for additional security. It is the more necessary to attend to these points in using catgut in consequence of its stiffness and slipperiness as compared with silk, if it is not sufficiently softened in carbolic solution just before being used. If the inner coats are cut through, and the ligature tightly tied, I believe that complete obliteration will be brought about in almost every case, and even in spite of suppuration occurring. It was because this was not effectually done that these two failures took place, and they do not afford a particle of reliable evidence that suppuration is an end to be either aimed at or desired. On every principle of surgery there must surely be additional safety in securing immediate union by the plastic operations of nature, uninterfered with by the degenerative inflammatory action which suppuration implies. Catgut, if of proper quality, and properly applied, is, in my opinion, by far the best material yet known for ligature of arteries, whether in their continuity or otherwise; but if the well-established rule in surgery, that the inner coats must be divided by the ligature, be not carefully observed, and if, as there seems to be some prospect, a return should be made to the long-abandoned practice of using broad ligatures, and attempting merely to approximate the sides of the vessel, I venture to predict that it will not be long before more failures will be heard of.

I have had four opportunities of observing in post-mortems the changes effected by the catgut ligature. I will not go into the details of the cases, as it is unnecessary for my immediate purpose. Briefly, the following were the conditions met with:—

1. Ligature of external iliac for hæmorrhage; death after sixty hours. Ligature firmly in position, and but slightly changed; internal coats divided; firm conical coagulum above and below, adherent by their bases to the seat of ligature, and also to the sides of the vessel.

2. Ligature of common femoral; death in eleven days; wound healed by first intention; ligature completely absorbed; vessel firmly closed; divided edges of inner coats visible, and turned inwards; firm conical coagulum above and below, adherent as in the first case.

3. Ligature of superficial femoral; death after twenty-eight days; wound suppurated freely, but suppuration did not reach down to the vessel; artery firmly closed, and constricted at seat of ligature, which had disappeared; firm conical coagulum adherent, as in the other two cases, but fainter in colour.

4. Ligature of external iliac for hæmorrhage; death in thirty days; sloughing of wound extending towards artery, but not reaching it or affecting peritoneum; artery firmly closed and constricted at seat of ligature, which had disappeared; firm, pale coagulum for some distance above and below, and apparently undergoing absorption.

The deaths in these cases were from causes quite independent of the ligature. The uniformity of the result as regards coagulation and closure is remarkable, and goes far to show the desirability of thoroughly dividing the inner coats. The use of a substance which will be removed by vital absorption, the ends of which may, therefore, be cut short, is a great advantage, as it appears from the last two cases mentioned that plastic effusion may take place

around the ligature and vessel, so as to shut them off from unhealthy processes which may be going on in the superficial parts of the wound.

I am, Sir, your obedient servant,

Norfolk-square, March 14th, 1881. JAMES R. LANE.

THE CHLOROTIC MURMUR.

To the Editor of THE LANCET.

SIR,—Dr. Balfour entirely ignores my explanation as to how I came to mistake *his* views. He surely must admit that it is possible to miss a paper even in THE LANCET. Having missed his paper, I maintain, firstly, that I was entitled to consider the views expressed in his work on the heart as representative of his opinions; and, secondly, that the conclusion at which I arrived after studying his sixth chapter—viz., that "he denies that the so-called basic murmurs of anæmia are ever arterial" was a logical conclusion, justified by his argument as a whole, and by the passages which I quoted in my last letter in particular.

I have already expressed regret that I should have coupled Naunyn's name with the chlorotic murmur. As an extenuating circumstance, I was, I think, justified in stating that such trustworthy authorities as Dr. Bristowe and Dr. Fothergill had come to the same conclusion on this point as myself, and I am glad to know that neither Dr. Bristowe nor Dr. Fothergill takes exception to my having done so.

The explanation which Dr. Balfour gives of the reduplicated second sound in mitral stenosis is not mentioned, much less accepted, by any writer to whom I have been able to refer. (Since this paragraph was originally written I have learned from Dr. Balfour that the explanation is his own.) The same argument which Hayden brings against the theory that the reduplication is due to asynchronism in the closure of the segments of either sigmoid valve seems to apply with equal force here.

Hayden says: "I have repeatedly made the following observation, which seems conclusive as against the univalvular origin of double second sound. Whilst a double second sound was equally audible at the orifice of the aorta and pulmonary artery, but most distinctly so at a point intermediate to, and equidistant from both, a single second sound only existed at the distance of an inch or so external to either orifice in the horizontal line. Manifestly if derangement of synchronism in the closure of the segments of either set of valves had been the cause of reduplication, the latter would have been audible to an equal distance from the orifice in the directions inwards and outwards, and it would have been most distinct at the orifice itself, and not midway between the two orifices."—(Diseases of the Heart, p. 127).

But, further, is it a fact that the systolic closure of the valves, which Ceradini describes, is attended by any sound at all? I understand that the distinguished Professor of Physiology in the University here is in the habit of teaching that the second sound is not due to the closure but to the stretching which follows the closure. Dr. Fothergill writes me that in his opinion the systolic closure of the valves, in a fluid in equilibrium, could not cause an audible snap.

I am, Sir, your obedient servant,

Edinburgh, March 18th, 1881. BYROM BRAMWELL.

PRIVATE DISPENSARIES.

To the Editor of THE LANCET.

SIR,—I have noticed various allusions of late in your valuable journal to what you call "private" dispensaries, and generally of an unfavourable character. The profession generally will sustain this representation. I was waited on a few weeks ago by the unqualified assistant of a well known proprietor of these cheap dispensaries. His object was to beg a few shillings under the following circumstances: He and his other unqualified colleagues had all at one fell swoop been discharged by his master, and, as his wages were only 25*s.* a week when in work, he was impecunious. He told me that he saw most of the patients and attended a good deal of the midwifery. Such a system as you point out in last week's LANCET is deluding to the working classes and discreditable to the men who carry it on. I have noticed, too, a tendency to make dispensaries rather with a view to sale than practice, by which innocent men—as pointed out by your correspondent, L.R.C.P. Edin. (THE LANCET, Feb. 5th)—are lured into very delusive purchases. I hope you will keep your vigilant eye on this undignified style of work.

I am, Sir, your obedient servant,

March, 1881. L. S. C.

MANCHESTER.

(*From our own Correspondent.*)

MONSALL FEVER HOSPITAL, it appears, is larger than is required for infirmary patients, and for those for whom provision is reserved on behalf of the city of Manchester, and that it has been the custom to admit patients from the suburban townships, as well as pauper patients, on certain terms. The annual loss to the infirmary in keeping up an establishment so much in excess of its requirements is, in round numbers, £1500 per annum, and the Board of the Infirmary have come to the conclusion that the present arrangements with the sanitary and poor-law authorities must be so revised as to prevent any further encroachment upon their funds. An adjourned conference on the subject was held on the 17th inst., the Infirmary Board being met by representatives of the health department and most of the local boards of the outlying districts. Considerable discussion took place as to the best and most equitable mode of distributing the excessive expenditure, the following resolution being ultimately adopted:—"That an arrangement be made that will distribute the ascertained annual loss of £1500 on the Monsall Fever Hospital, in fair proportions, amongst the several sanitary authorities of Manchester and the district, and that the said arrangement be calculated upon the mean percentage of the population and rateable value of property, and, further, that a charge of 3*s.* per head per day be made for each patient sent; this arrangement to be in force for three years." This scheme bids fair to make good the deficiency upon an equitable basis, and relieve the infirmary funds of an expenditure which presses hardly upon them, and ought to be accepted by the authorities, as the infirmary, a public charity, should not be a loser in a matter which so deeply concerns the health of the city and district.

Last week Mr. Cornelius Neale Dalton, the inspector of the Local Government Board, held an inquiry at the Manchester Town Hall in reference to an application which has been made by the corporation for a provisional order to enable them to acquire *inter alia* certain powers of raising money, and providing privies and ashpits in buildings where manufactures were being carried on; with these by-laws I do not propose to deal, but the 5th section greatly affects the medical profession of this city, in so far as the corporation asks power to require a notice of cases of infectious diseases to be given to the medical officer of health by the occupiers of premises when such cases occur, and also by the medical man in attendance on such case, and to provide for his remuneration for each case reported. It was stated as a plea for the necessity of compelling householders and the medical attendant to inform the sanitary authority of the existence of infectious diseases that last year the number of deaths in the city from infectious diseases was 423, and assuming that for every death eight cases recovered, the large number of 3384 cases would be reached, and yet only 85 cases were removed to Monsall Fever Hospital, and 94 to the Children's Hospital during that period. The corporation were further of opinion that it is only by systematic information given by medical men who are brought into contact with such cases that infectious diseases can be adequately dealt with.

A deputation of the Parliamentary Committee of the Medico-Ethical Association, comisting of its President, Dr. Lloyd Roberts, and its Secretary, Dr. Pierce, together with the President of the Society, Dr. John Roberts, Dr. Peatson, and the Honorary Secretaries, waited upon the inspector with a view of giving support to the general principle contained in the by-law quoted above. After considerable discussion the inspector decided to recommend the responsibility of reporting the cases to be laid, as the corporation desired, on both the householder and the medical attendant, but fixed the fee to the latter at the rate of two-and-sixpence per case. The forms of infectious disease scheduled were typhus, typhoid, variola, rubeola,

diphtheria, and cholera. The medical profession here owes a debt of gratitude to the Medico-Ethical Association for their prompt action in the matter, for in the absence of their representations it is problematic whether an adequate fee would have been allowed for the reports.

At the Royal Infirmary Mr. Hardie is adopting a somewhat new method of dressing stumps and other amputations with much success. He covers the wound with a sponge dipped in an antiseptic solution, and retains it *in situ* by means of an elastic bandage; he does not remove the dressing for several days, and, as a rule, obtains primary union and no purulent secretion. I hope Mr. Hardie will explain his method in detail in your columns at no distant date.

GLASGOW.

(From our own Correspondent.)

THE number of changes which have taken place in medical circles in Glasgow within the last few years is quite remarkable, and it seems as if we were shortly to have another very considerable rearrangement of offices and places. The present excitement is caused chiefly by the vacancies in Anderson's College, the Western Infirmary, and the medical officership to an important insurance company. Judging by the number of candidates who are striving for the post, the last-mentioned prize appears to cause most stir; it is a noteworthy fact that the President of the Faculty of Physicians and Surgeons is canvassing as a candidate for it. In the Western Infirmary one physician and one surgeon are to be appointed to the new wards recently opened; for these offices also the number of claimants is very large. For the Chair of Midwifery at Anderson's College the principal candidates are Dr. A. Wallace and Dr. W. L. Reid, in either of whom the directors of the College would find a man well qualified to uphold the dignity of this important extra-mural school.

The Lord Provost of Glasgow, who seems to have made the sewerage question his own, announced recently that in a short time a sewerage scheme, likely to be the one most suitable for Glasgow, would be made public. If his lordship is right we shall all have reason for thankfulness, as the Glasgow sewerage question appears at present to be in as great a tangle as ever.

I hear it reported that in Mount Florida, a suburb of Glasgow, there is quite an epidemic of typhoid fever. The milk supply is blamed, but this part of the question is still under investigation.

PARIS.

(From our own Correspondent.)

THE measures being taken by the Municipal Council to replace the religious sisterhoods in the Paris hospitals by lay superintendents, or as it is called the *laïcisation* of the hospitals, have already created widespread dissatisfaction, and are likely to be the cause of serious trouble. The *France Médicale*, which has become the mouthpiece of the tolerant party, has published two protests against the expulsion of the nuns, which are signed by ninety-five hospital physicians and surgeons, and this number will no doubt be largely increased. It must not be supposed that the question at issue is one of religion. The majority of those who signed the protests would resent the accusation of "clericalism" as they have resented the persecution of the sisters, and the real motives of their conduct are entirely independent of creed. The true reason is to be found in a letter addressed by M. Desprès, with his characteristic bluntness, to the Prefect of the Seine, and published some time back by the medical press. No one can deplore more than the writer of this document the proselytising tendencies of many of the nuns; but, notwithstanding this defect, twenty-six years' experience in the hospitals has proved to the surgeon of La Charité that a secular attendant is worse for the patient. "A lay woman," says M. Desprès, "may be married and the mother of a family; when she will take as much time as possible from her duties for the management of her household." In this case the patient, left to the tender mercies of an often brutal *infirmier*, is not in an enviable position. "The lay superintendent, moreover, may keep the rings, earrings, and other trinkets which the nurses often take from the dying when they are not surrounded by the friends or properly watched. Such a temptation does not exist for the nun. The lay woman may have a child or husband ill, and she will not hesitate to take some dainties from the hospital for her own table." In wards for the reception of contagious disease, such as small-pox and diphtheria, a married woman will either neglect her work or run the risk of carrying infection abroad, and if she dies at her post it is a calamity for her family. But when a nun falls a victim to disease, "she dies alone, and is at once replaced by another. The thing is so much a matter of course that it has never occurred to anyone that her name should be recorded on a memorial tablet." From an economical point of view, change is also unadvisable. The religious communities cost the administration at the rate of £8 per head, and the members are fed and lodged together. A lay superintendent, on the other hand, is paid £24, and separate board and rooms have to be found in the hospital.

M. Desprès has studied the working classes very attentively, and he gives it as his opinion that patients who would vote in secret for the maintenance of the *religieuse* are the same who in public meetings and with their comrades shriek for the destruction of gods, churches, and ministers, with the greatest clamour. Even amongst the upper classes, he says, will be found many who declaim against the nun for the sick in hospital, but who themselves engage her in illness, because she does not get drunk or pry into cupboards. Without going into the same details as M. Desprès, the writers of the protests against *laïcisation* urge that the change is contrary to the interests of the patients.

Obituary.

DR. T. E. MACLEAN.

A RECENT number of the *Egyptian Gazette* gives a few particulars of the career of the late Dr. T. E. Maclean, whose death at Cairo we announced some weeks ago. After taking the degrees of M.B. and B.S. at the London University, and filling various posts at London hospitals, Dr. Maclean resolved to devote himself entirely to diseases of the eye. Symptoms of chest weakness manifesting themselves, he was strongly recommended by eminent physicians in London to go to Egypt. This advice he followed, and established himself at Luxor, the central point of Upper Egypt for Nile travellers. By his own personal efforts he there opened a small hospital, which was highly valued by the natives, who crowded to it for medical advice and operations. Dr. Maclean ultimately broke off his connexion with Luxor and settled permanently in Cairo, where he gained for himself a considerable reputation as an oculist ere he was carried off by the disease that had for several years more or less crippled him.

Dr. Maclean was most popular as a student, his steady perseverance and honesty of purpose in all he undertook, also his patience when teaching, were fully appreciated and acknowledged by the students electing him the President of the University College Medical Society.

JOSEPH BINDLEY TALBOT, L.R.C.P. LOND., &c.

THE late Mr. Talbot received his early education at the Park near Sedgley and at Douai in France. Having shown a predilection for the medical profession, he became a pupil of Messrs. Walker and Ashmead of Brierley Hill, and afterwards a student of the Birmingham School of Medicine. He was successful in carrying off the medals in anatomy and physiology, and attaining the senior prize in clinical medicine at the Queen's Hospital. Having filled the posts of Resident Clinical Assistant Physician and Resident Obstetric Physician at the Queen's Hospital, he obtained the appointment of Assistant Physician to the Bickton Asylum, Shrewsbury, and won the esteem of all connected with the establishment. He was afterwards appointed Medical Officer of Health for Kingston, Jamaica, but the office of Assistant-Physician to the Lunatic Asylum there becoming vacant, he succeeded to the post. Subsequently he practised at Swan River, Orange Valley, and latterly at St. Ann's Bay. Possessed of more than ordinary abilities and many

accomplishments, he combined with them a high spirit and generous disposition; many of his teachers and fellow students will not readily forget his genial nature or fail to regret that his light should have gone out so soon. The deceased gentleman had been called up during the night, and appears to have been working hard all the morning, only ceasing for an interval to play and sing one of his accustomed songs. He expressed himself as feeling unwell; but hopefully expected to be better after a nap. He proceeded to the hospital, and, after writing some prescriptions and leaning forwards upon the table with his head resting upon his hands, was found by the dispenser in a state of insensibility. He was removed to his residence, but never regained consciousness.

Mr. Talbot has left a young widow and two daughters, as well as the old folk at home, to deplore his loss. A post-mortem examination showed that death had occurred from heart disease, the particulars of which are not forthcoming.

SURGEON ARTHUR TERMYN LANDON.

SURGEON LANDON, whose lamented death from wounds received in action at Majuba Hill we have already recorded, was but twenty-nine years of age, and had only received his commission for three years. This gallant young officer highly distinguished himself whilst at Netley, where he proved himself to be *facile princeps* amongst the army medical candidates of his session as regards his professional attainments by passing out first on the list and carrying off the prize for Military Surgery, whilst his genial qualities made him a universal favourite. The news, therefore, of his early death will be received with feelings of deep sorrow by all the candidates for commissions of the summer session of 1878, not unmingled with a sentiment of admiration for the gallant way in which he met his death in the service of his country.

Medical News.

APOTHECARIES' HALL.—The following gentleman passed his examination in the Science and Practice of Medicine, and received a certificate to practise, on March 10th:—

Pigott, Peter, Dulwich.

The following passed on March 17th:—

Atkinson, Thomas Ruell, Fleet-street.
Hagyard, Robert, George-street, York.

The following gentlemen also on the same day passed the Primary Professional Examination:—

George Neale, London Hospital; Henry Roberts, St. Bartholomew's Hospital; Thomas Taylor, Middlesex Hospital.

COLLEGE OF PHYSICIANS IN IRELAND.—During the March examinations the following obtained the licences in Medicine and Midwifery of the College:—

MEDICINE.—James Stuart Brooke, Harry Lysaght Hoops, James Quirke, H. J. Wyatt.

MIDWIFERY.—Harry Lysaght Hoops, Clement Mallins, Vincent Adolphe Passanha, Godfrey Forrest Reid, Frederick Thomas Skerrett, Richard Charles Studdert, H. J. Wyatt.

The under-mentioned Licentiates have been admitted Members:—

John Joseph Dingeman, George Alexander Moorhead, Richard Foster Owen, Joseph Michael Redmond, Richard Gelling Tyner.

MR. JOHN HANDLEY, late of Newark-on-Trent, bequeathed £100 to the General Hospital, Nottingham.

THE Prince of Wales has fixed Monday, the 9th of May, for the festival dinner of the Royal Hospital for Children and Women, Waterloo-road, at which his Royal Highness will preside.

MR. J. D. T. RECKITT, on resigning the post of house-surgeon to the Newark Hospital, was presented by the governors with a purse of thirty guineas, as a mark of their esteem, and of their consideration for his past services.

THE total proceeds thus far accruing from the Hospital Saturday and Sunday collections at Manchester, amount to £5752 3*s.* 5*d.*—a sum slightly below that realised in 1879.

HOME FOR PROTESTANT INCURABLES, CORK.—During the past year a sum of £6375 was placed to the credit of the Building Fund, and the committee have in hand sufficient funds to carry out the necessary works they have entered upon.

THE full superannuation allowance has been awarded to Dr. F. J. Lynch, late medical officer of the Loughrea Union.

A MEETING was held in Dublin last week for the purpose of forming a Ladies' Association, in connexion with the Dublin Sanitary Association, for improving the condition of the homes of the poor of Dublin, and for the promotion of health reform amongst all classes of society. A provisional committee was appointed to prepare rules and to report at a future meeting.

THE "Charity Record" gives the following reminder of the necessity in making bequests to accurately describe the charities intended to be benefited. The Royal London Ophthalmic Hospital, Moorfields, was left £500 by a lady, but the institution not having been correctly named, claims were made by other hospitals, and, the matter being placed in the Court of Chancery, only £119 18*s.* has been awarded to the Royal London Ophthalmic Hospital.

IN the report read at the annual meeting of the friends of the Hertfordshire Seaside Convalescent Home, allusion was made to the frequency with which the true objects of the institution were overlooked by those who had the privilege of recommending patients for the receipt of its benefits. It has been found necessary in consequence to adhere rigidly to the rules regarding the admission of inmates, and to exclude such persons as may be sent in violation of the regulations.

EARLSWOOD ASYLUM.—On Tuesday last the thirty-fourth anniversary of this institution was held under the presidency of Mr. J. Colman, M.P. It appears there had been a marked falling off in the contributions last year, which is a matter for regret, seeing that only about one-third of the £30,000 expended in the maintenance of the Asylum had been paid by the friends of the patients. Some £2000 were contributed during the evening.

A COMBINED meeting of the Northern Counties, the North Western, and the Yorkshire Associations of Medical Officers of Health will be held at York, on April 7th, to consider the question of Infantile Mortality from Diarrhœa. The discussion will be confined to the following points—viz., 1st, The causes of diarrhœa, more particularly those indicating a specific or non-specific origin. 2nd, Is the infantile diarrhœa prevailing during the third quarter of the year a zymotic disease? 3rd, The pathology of uncomplicated diarrhœa. As the meeting will not be confined to members of the three societies, Dr. J. Mitchell Wilson, Doncaster, Secretary of the Yorkshire Association, will be glad to receive papers, or the proposal to speak at the meeting from other members of the profession.

AN influential meeting, under the presidency of the Lord Mayor of Dublin, was held last Monday for the purpose of considering the best site for the new science and art museum. The authorities at South Kensington wish to place the new building on Leinster Lawn—a proposal which is regarded by the majority of the citizens with disfavour,—have offered £100,000 if their suggestion is adopted, and have more than hinted that unless this plan is accepted a very much smaller sum will be forthcoming. The meeting unanimously adopted a resolution that the Kildare-street site should be selected, and pressed on Her Majesty's Government the justice and expediency of proceeding as expeditiously as possible to give effect to the provisions of the Dublin Science and Art Museum Act, 1877.

Medical Appointments.

Intimations for this column must be sent DIRECT *to the Office of* THE LANCET *before 9 o'clock on Thursday Morning, at the latest*

BALL, C.B., M.D., M.Ch., F.R.C.S.I., has been appointed Medical Officer to the Grand Canal-street Dispensary District, Dublin.

BEVAN, W. Ll. P., M.B., C.M., has been appointed House-Surgeon to the Dorset County Hospital.

BERRETON, J. B., L.K.Q.C.P.I., L.R.C.S.I., has been appointed Medical Officer for the First District of the Bodmin Union.

CAWTHORNE, B. W., M.B., C.M., has been appointed Medical Officer for the Fifth District of the Stroud Union.

COLLINS, H. W., M.R.C.S.E., L.S.A.L., has been reappointed Medical Officer for the Fifth District of the Axbridge Union.

EDWARDS, D. T., M.R.C.S.E., L.S.A.L., has been appointed Medical Officer of the Pentyrch District of the Cardiff Union.

ENGLISH, Mr. E., has been appointed House-Surgeon at the London Hospital, vice Richardson, resigned.

FORD, J., M.R.C.S.E., L.S.A.L., has been reappointed Medical Officer for the Ninth District of the Axbridge Union.

JOHNSTON, H. M., M.D., L.R.C.S.I., has been appointed Medical Officer to the Stranorlar Union Workhouse and Fever Hospital, vice Love, resigned.

KEMMIS, H. M., L.K.Q.C.P.I., M.R.C.S.E., has been appointed Medical Officer for the First District of the Bridgwater Union, vice Hurman.

LOWE, W. F., F.C.S., has been appointed Public Analyst for the County of Carnarvon, vice Owen, resigned.

MORGAN, W., F.C.S., has been appointed Public Analyst for the Borough of Haverfordwest.

O'DONAGHUE, P., L.K.Q.C.P.I., L.R.C.P.Ed., L.F.P.S.G., has been appointed Medical Officer to the Hospital of the Loughrea Union, vice Lynch, resigned.

ORFEUR, C. H., has been appointed Medical Officer for the Nailsea and Wraxall District of the Bedminster Union, vice Adams, resigned.

PATTON, W. J., B.A., M.B., L.R.C.S.I., has been appointed Assistant Medical Officer to the Three Counties Asylum, vice Dr. J. S. Buck, resigned.

POTTER, S. R., A.B., M.B., has been appointed Public Vaccinator for Collumpton District, Tiverton Union.

SMITH, J., M.R.C.S.E., L.M., L.S.A.L., Honorary Medical Officer to the Royal Surrey County Hospital, has been elected Medical Officer of Health to the Rural Sanitary Authority, Guildford Union, at a salary of £200 per annum.

STEELE, W. C., L.R.C.P.Ed., M.R.C.S.E., L.S.A.L., has been appointed Medical Officer to the Newington Infirmary, Walworth.

WOOD, E. J., M.B., M.R.C.S.E., L.S.A.L., has been appointed Medical Officer for the Third District of the Maidstone Union.

Births, Marriages, and Deaths.

BIRTHS.

CARNE-ROSS.—On the 18th inst., at Chalmers-street, Edinburgh, the wife of J. Carne-Ross, Esq., M.B., C.M. (late Lieut. 73rd Regiment), prematurely, of a son, who survived his birth an hour.

ELLIS.—On the 17th ult., at Sitapur, Oudh, the wife of J. Ellis, M.D., Bengal Medical Service, of a daughter.

HARRTRY.—On January 27th, at Barkly Diamond Fields, South Africa, the wife of William Rosser Harrtry, L.R.C.P., M.R.C.S.E., J.P., of a son.

LAND.—On the 18th inst., at Bordyke House, Tonbridge, Kent, the wife of William J. Land, Esq., M.R.C.S.E., of a daughter.

LAW.—On the 22nd inst., at 20, Warrior-gardens, St. Leonard's-on-Sea, the wife of W. T. Law, M.D., F.R.C.S., of a son.

WINCKWORTH.—On the 11th inst., at Shefford, Beds, the wife of Charles Edward Winckworth, L.R.C.P.L. &c., of a daughter.

MARRIAGES.

MOORE—ARMSTRONG.—On the 15th inst., at Christ Church, Leeson-park, Dublin, John W. Moore, Esq., F.R.C.P., Physician to Meath Hospital and Cork-street Fever Hospital, to Louisa, youngest daughter of the late Edmund J. Armstrong, Esq., J.P. and D.L., of County Clare, and Lower Leeson-street, Dublin.

PURVES—ADIE.—On the 19th inst., at St. John's Church, Woodlands, William Laidlaw Purves, M.D., of Stratford-place, Oxford-street, W., to Elizabeth Adie, second daughter of Patrick Adie, of Wortou Hall, Isleworth.

YEO—SICH.—On the 16th inst., at the Parish Church, Chiswick, Robert F. Yeo, Esq., Surgeon R.N., only son of Thomas F. Yeo, Esq., of Uplands, Delgany, County Wicklow, to Alice, eldest daughter of William Thraie Sich, Esq., of Chiswick.

DEATHS.

ASHFORD.—On the 18th inst., at Windsor Villas, Plymouth, John Butter Ashford, Esq., M.D., in his 69th year.

CHILDS.—On the 14th inst., at Tower House, Uxbridge, Archibald Prentice Childs, F.R.C.S.E. &c.

DANIELL.—On the 23rd inst., at 20, Cathcart-road, South Kensington, S.W., Sarah, the beloved wife of Richard Thomas Daniell, M.B., F.R.C.S.I.

DAVIES.—On the 19th inst., at Nice, Albert Davies, M.D., late of Maidstone, Kent.

ELLIS.—On the 19th inst., at his residence, Tower-street, Hackney, and late of Sudbrook-park, James Ellis, Esq., M.D., aged 77.

FORBES.—On the 20th inst., at Queen-street, Edinburgh, George Feddes Forbes, Surgeon-Major, H.M. Indian Army.

SPROTT.—On the 16th ult., at Kingstown, St. Vincent, West Indies, Robert Porter Sprott, M.D., Medical Officer No. 1 District, aged 50.

WHITE.—On the 14th inst., at Montagne House, Bath, John Ludford White, M.A., F.R.C.S., formerly of Dowlais, aged 67.

N.B.—*A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET OFFICE, March 24th, 1881.

Date.	Barometer reduced to Sea Level, and 32° F.	Direction of Wind.	Dry Bulb	Wet Bulb	Solar Radia in Vacuo	Max. Temp Shade	Min. Temp	Rain fall.	Remarks at 8.30 A.M.
Mar. 18	30·53	W.	46	44	..	61	99	..	Hazy
,, 19	29·23	W.	47	44	..	58	42	..	Cloudy
,, 20	29·90	W.	48	46	..	55	39	..	Overcast
,, 21	29·71	W.	44	41	..	47	40	..	Overcast
,, 22	30·01	N.W.	35	35	..	45	29	..	Overcast
,, 23	29·92	W.	40	38	..	49	30	..	Cloudy
,, 24	29·23	N.W.	47	43	..	50	37	·20	Cloudy

Medical Diary for the ensuing Week.

Monday, March 28.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M. each day, and at the same hour.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M. each day, and at the same hour.

METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.

ST. MARK'S HOSPITAL.—Operations, 2 P.M.; on Tuesday, 9 A.M.

MEDICAL SOCIETY OF LONDON.—8.30 P.M. The President will exhibit a Case of Paralysis in an Adult simulating Hypertrophic Paralysis and a Case of Double Facial Paralysis.—Dr. J. Milner Fothergill will make a few Remarks upon the Digestion of Fats, and exhibit some Specimens of Oils.—Dr. Stephen Mackenzie will give the Notes of a Case of Syphilitic Disease of the Spinal Cord.—Dr. Day, "On 'Tubercular Meningitis' and the Mode of Treatment."

Tuesday, March 29.

GUY'S HOSPITAL.—Operations, 1½ P.M., and on Friday at the same hour.

WESTMINSTER HOSPITAL.—Operations, 2 P.M.

WEST LONDON HOSPITAL.—Operations, 3 P.M.

ROYAL INSTITUTION.—3 P.M. Professor Edward A. Schäfer, "On the Blood."

Wednesday, March 30.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.

MIDDLESEX HOSPITAL.—Operations, 1 P.M.

ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.

ST. THOMAS'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.

ST. MARY'S HOSPITAL.—Operations, 1½ P.M.

KING'S COLLEGE HOSPITAL.—Operations, 2 P.M., and on Saturday at 1 P.M.

LONDON HOSPITAL.—Operations, 2 P.M., and on Thursday and Saturday at the same hour.

GREAT NORTHERN HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M., and on Saturday at the same hour.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2½ P.M.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Croonian Lectures: Dr. Moxon, "On the Influence of the Circulation upon the Nervous System."

Thursday, March 31.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M.

ST. BARTHOLOMEW'S HOSPITAL.—1½ P.M. Surgical Consultations.

CHARING-CROSS HOSPITAL.—Operations, 2 P.M.

CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and on Friday at the same hour.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M.

NORTH-WEST LONDON HOSPITAL.—Operations, 2½ P.M.

ROYAL INSTITUTION.—3 P.M. Mr. H. H. Statham, "On Ornament."

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.—8 P.M. Living Specimen.—Mr. Sebastian Wilkinson, "On a Case of Retinal Hæmorrhage."—8.30 P.M. Adjourned Discussion on the Relation of Optic Neuritis to Intracranial Disease. Dr. Stephen Mackenzie, Mr. Hutchinson, Mr. Couper, Dr. Gowers, Mr. Nettleship, Dr. Walter Edmunds, Dr. Buzzard, Dr. Bralley, and others are expected to speak.

Friday, April 1.

ST. GEORGE'S HOSPITAL.—Ophthalmic Operations, 1½ P.M.

ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 2 P.M.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Lumleian Lectures: Dr. Southey, "On Bright's Disease."

ROYAL INSTITUTION.—3 P.M. Sir H. S. Maine, "On the King in his Relation to Early Civil Justice."

Saturday, April 2.

ROYAL FREE HOSPITAL.—Operations, 2 P.M.

ROYAL INSTITUTION.—3 P.M. Rev. H. R. Haweis, "On American Humorists."

Notes, Short Comments, and Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Local papers containing reports or news-paragraphs should be marked.

Letters, whether intended for publication or private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

Lectures, original articles, and reports should be written on one side only of the paper.

We cannot prescribe, or recommend practitioners.

All communications relating to the editorial business of the journal must be addressed "To the Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "To the Publisher."*

ON THE RELATION OF TEMPERATURE TO MORTALITY.

A PAPER was read by Dr. Guy, F.R.S., at the last meeting of the Statistical Society, "On the Relation of Temperature to Mortality," as shown by the returns of Dr. Wm. Heberden, Dr. Thomas Short, and Dr. Scoresby-Jackson, and further illustrated by the experience of the German insurance office at Gotha for the half century ending 1878. Dividing the year into three periods of four months, the first comprising the period of greatest heat (June, July, August, and September), the second that of greatest cold (December, January, February, and March), and the third, or temperate period (April, May, October, and November), it appears that the first furnishes the smallest and the second the largest number of deaths, the third holding an intermediate place. This, however, applies only to the more temperate climates, for the returns for Marseilles and Montpellier show the highest number of deaths in the hot and the lowest in the temperate months, the cold furnishing the intermediate number. An examination of Heberden's tables brought out two important facts—1st, that the lowest mortality occurred at all ages in the summer, and, with the exception of infants and children under five years, the highest in winter; 2nd, that, with a solitary exception, the high mortality of the cold months increases, while, without any exception, the low mortality of the summer months becomes less and less as age advances. The author went into some detail as to the influence of temperature on the mortality by various groups of diseases, and also illustrated the power of cold in raising the death-rate of the aged by a comparison of the mortality above sixty in years, in which there was a marked difference of temperature. Dr. Guy said it was not a new truth that the highest death-rate prevailed during the coldest months, but it was a new truth that the three seasons in the year which presented the coldest, highest, and intermediate temperatures did present also a continuity, or, rather, a regularity of results which had not been previously pointed out. The paper gave rise to an interesting discussion, at the close of which the thanks of the meeting were voted to the author.

THE letter of *Mr. A. Kisch* arrived too late for consideration this week.

Mr. Bowman.—An answer will appear in our next.

Subscriber had better apply to the Secretary of the B. G. A., 20, Golbourne-road, W.

CHRYSOPHANIC ACID IN PSORIASIS.

To the Editor of THE LANCET.

SIR,—Having just seen in your last issue an account of the treatment of a case of psoriasis by Dr. Radcliffe Crocker (read before the Medical Society of London), in which one-half of the body was treated by chrysophanic acid and the other by turpentine, and where it was apparently shown that the one drug was quite as active as the other, I venture to communicate the following:—Professor Charteris, in a recent lecture to his class, described some cases in which it was very evident that chrysophanic acid acted constitutionally as well as locally. In one very severe case he, having previously very carefully wrapped up the arm and leg of one side in cotton-wool, applied chrysophanic acid (one drachm to one ounce) to the leg of the opposite side. In ten days the cure was complete, and on removing the cotton-wool from the other side it also was found to be quite cured of the psoriasis. This shows that the drug acts constitutionally as well as locally. Might this not be an explanation of the apparent efficacy of turpentine in Dr. Crocker's case?

I am, Sir, yours, &c.,

March 7th, 1881. A STUDENT IN MATERIA MEDICA, Glas. Univ.

THE LIFEBOAT INSTITUTION.

THIS enterprise has a strong claim on the sympathy and support of the community. As a means of saving life it appeals to the instincts of the medical profession, and must needs awaken strong interest. The institution has now 270 lifeboats in operation. In 1880, 577 persons were rescued from wrecks, and twenty-seven vessels were saved by the help of the society. It would be difficult to point to any institution more worthy of the pecuniary aid of the philanthropic.

House-Surgeon.—No.

SOME OBSERVATIONS ON BRITISH MINERAL WATERS AT THE PRESENT TIME.

To the Editor of THE LANCET.

SIR,—For some time past I have been interesting myself in British mineral waters, and as I have come to certain conclusions respecting them, I shall be glad if you will insert this communication, with the hope of bringing the matter before the profession, and, through them, before the public.

It is not my intention at present to enter into the merits of any particular spring, but simply to gather up a few fragments, which I hope will be the means of inducing those members of the profession who live in localities where mineral waters exist to bestir themselves, and by every legitimate professional endeavour to bring their particular mineral water before the British nation.

I think that if some kind of general organisation or co-operation could be set on foot amongst all ranks of the profession, and especially among the consultants of London and other large towns, much might be done to save our great mineral springs. I have reason to believe that there is a move going on in the proper direction; at least such is my impression from the numerous communications received from medical men and others.

I do not for a moment undervalue the merits of most, nay, of all foreign mineral waters, but I contend that we have many mineral waters of equal value in this country. This is the opinion of many of the highest authorities in the land, from Sir Robert Christison and Sir Henry Thompson downwards. I have a letter from Sir Robert Christison so late as December 6th, 1880, on this very subject. He was kind enough to give me his opinion upon certain kinds of mineral waters, and amongst his general remarks he says, "There is no doubt that in search of relief from the use of most varieties of mineral waters our countrymen have for a long time past made it a senseless fashion to repair to the continental springs when they have comparatively at their doors springs of the same quality, beautiful surroundings, national amusements, and, above all, British comforts." He then goes on to compare British and foreign mineral waters, giving credit to many kinds of thermal waters, and also to the acidulous cold springs which abound on the Continent. In concluding his remarks, he says, "As to aperient saline springs, for which we Britishers have perhaps more occasion than for any others, so long as Leamington and Harrogate, &c., in England, and Airthrey at Bridge of Allan, in Scotland, are not drunk dry, there is no reason—no medical reason, I mean—why a man should deprive himself of his home comforts and submit to the annoyances of long journeys and continental deficiencies. The best means would be, if possible, to convince the consulting physicians of London of the folly of the present fashion."

Now, what are some of the mineral waters for which Great Britain is famous, where are they to be found, and what are some of the maladies which they remedy? Let us inquire.

1st. Salines.—Found at Leamington, Epsom, Cheltenham, &c., in England, and Bridge of Allan in Scotland. Complaints which they remedy: Chronic gout, rheumatism, dyspepsia, sciatica, hepatic, renal, and uterine disorders, paralysis, &c.

2nd. Sulphurous.—Harrogate and Leamington in England, Strathpeffer in Scotland: Skin diseases, rheumatism, dyspepsia, &c.

3rd. Alkalines.—Bath, Buxton: Rheumatism, gout, eczema, dyspepsia, &c.

4th. Iodo-Bromides.—Woodhall (stronger than any on the Continent): Syphilis, rheumatism, tumours, &c.

5th. Chalybeates.—Tunbridge Wells, Cheltenham, Leamington (in small degree), Harrogate, &c.: Anæmia, dyspepsia, &c.

These are a few British springs, and many of them will bear comparison with any foreign ones. Well, then, may Sir R. Christison ask "Why go abroad for the same thing?" Experience goes to show that those waters give greater benefit when drunk fresh from the wells and for a certain period. Let, therefore, consultants and medical practitioners generally combine to recommend our home mineral waters where they are likely to afford equal relief with the foreign ones, and depend upon it that all parties interested in the matter will benefit.

In a following paper I hope to bring forward the properties of our Leamington springs, and in the meantime I ask our professional brethren to combine, agitate, and write wherever they have valuable springs to write about. To show how necessary it is that something should be done in this way, I may say that at the present time in this town it is proposed to "build upon and partly shut up" a certain number of baths in connexion with the pump-rooms to make room for municipal buildings. Sir Robert Christison, when speaking of the decay of another inland watering-place, describes it as "the now despised, but once popular Bath." Can we do nothing to remedy the evil? I think we can.

I am, Sir, your obedient servant,

Leamington, Feb. 28th, 1881. F. WILLIAM SMITH, M.D.

A DISCREET BOARD.

THE question of the supply of stimulants to the workhouse having come up for discussion at the Preston Board of Guardians last week, Dr. Ridley said, that if spirits as stimulants were not allowed the Board would have to have recourse to drugs, which in many instances were far more costly, though spirits would often answer the same purpose, and at less expense. One of the guardians remarked that the medical officer was their master in this matter, and they should abide by his decision. It was then resolved that spirits be supplied as heretofore.

Dr. Edward Jones.—The fee rests with the coroner in a case when no inquest is held.

Anglo may obtain information from our advertising columns.

FLEXIONS OF THE UTERUS.

To the Editor of THE LANCET.

SIR,—I crave permission to have inserted this short letter. A communication from Dr. Herman appears in your issue of March 5th, containing some pointed remarks on a most important subject. They seem to me rather unfair. It is no doubt evident that the publication of isolated cases does not prove much, but, unless I am entirely mistaken, no one is more desirous of having "every case" recorded (if that happy consummation could be in any possible way arrived at) than Dr. Wynn Williams. For a period of about three years I have been a close observer of his practice at the out-patient department of the Samaritan Free Hospital, being specially interested in this particular subject. At his clinique all comers are most courteously received who desire to witness his practice. A great many cases returned again and again, most for symptoms not connected with former troubles. Some of the patients I accidentally met elsewhere. One was first of all under my own care in private practice, and is, like nearly all the others I have seen, a successful instance of treatment by this particular intra-uterine stem in question.

Thus far I can bear testimony that in no instance did I witness anything like dangerous symptoms follow the practice. Dr. Herman's use of the phrase "this startling statement" in his letter I regard as quite natural. It was the cause of my regular attendance at this hospital for so long a period.

I am sorry now to be unable from want of time to follow out my so far negative quest of unsuccessful cases, or rather for cases ending fatally, for surely no one supposes that success in every case is invariable, or even complete.

I am, Sir, yours, &c.,

Warwick-road, S.W., March, 1881. ALEX. M. LANG.

J. H. B.'s questions have been mislaid. The degree can be obtained from the various universities of Europe. Our correspondent would find much useful information in a work entitled "Medical Education and Practice in all Parts of the World," by Herbert Janius Hardwicke, M.D., published by Churchill. The most useful work on Clinical Thermometry is Wunderlich's, published by the Sydenham Society.

C. H.—We cannot interfere in the matter.

Dr. Meredith should apply to the Secretary of the Manchester Provident Dispensary Association and to the secretaries of the Royal Albert Hospital, Devonport, and of the Royal Portsmouth, Portsea, and Gosport Hospital, both of which co-operate with provident dispensaries.

Beta.—We are not aware. The information may no doubt be obtained of one of the hon. secretaries of the Fund by addressing a letter to 11, New Burlington-street.

DISLOCATION OF SHOULDER-JOINT AND DEATH FROM CHLOROFORM.

To the Editor of THE LANCET.

SIR,—I have been struck, as doubtless others have also, with the comparative frequency of death from chloroform when the patient under its influence has been the subject of dislocation of the shoulder. The only death from chloroform I have seen was one of this kind. I well know that it is very much easier to reduce a dislocation with the patient under the influence of chloroform than to strain one's arms in pulling in a dislocation in the ordinary manner with the heel in the axilla. But the question arises, Is it worth the risk? Emphatically, No. The method I have adopted for over eight years, and have taught, has been to take an ordinary jack-towel, fix it with a clove-hitch above the elbow of the dislocated limb, and then put the other end over one shoulder, across the back, and under the other arm; then, placing my heel in the axilla, I use the weight of my body and the muscles of my back in making the extension that is to tire out the shoulder muscles of the patient—from two to three minutes generally effects this,—and then bringing the patient's arm towards the median line, the head of the humerus slips in. This method I have never known to fail, and by it I have several times reduced a shoulder dislocation when others had failed and were going to administer chloroform. It has also the advantage of not tiring the surgeon's arms.

I am, Sir, yours faithfully,

HERBERT A. LAWTON, L.R.C.P. Lond.,
Late House-Surgeon, Liverpool Royal Infirmary and
Poole, March 5th, 1881. Westminster Hospital.

JELLY-FISH.

MR. ROMANES, F.R.S., in his lecture at Trinity College, Mandeville-place, Manchester-square, last week, on jelly-fish, mentioned two or three facts respecting this interesting animal which, though well known to biologists, may be new to many. The lecturer stated that he had found by experiment that the fresh-water species were as intolerant of salt water as the marine species were of fresh. Jelly-fish were very various in form, but, although divergent in shape, they all presented fundamentally the same anatomical structure. However minutely cut up, each portion would develop into a perfect animal. The lecturer also showed that alcohol possessed an intoxicating power over jelly-fish.

"MAIN SEWER VENTILATION."

To the Editor of THE LANCET.

SIR,—Referring to the observations of Mr. Robert Rawlinson, that appeared in THE LANCET of January 15th, does it not seem rather anomalous that the utmost care should be exercised to prevent the entry of sewage gas into our dwellings, and yet the gas may be allowed to escape by means of the gullies, around which children may constantly be found playing! If the gas, when much diluted, can be shown to be free from disease germs or spores, I presume no danger may be apprehended; but, unless this be the case, would it not be better for Mr. Rawlinson to qualify his remark having reference to ventilation by means of the gullies, especially as his observations on such questions have much weight with many engaged in sanitary science? As one, I beg to subscribe myself A SANITARY ENGINEER.

March 17th, 1881.

TRACHEOTOMY TUBES.

To the Editor of THE LANCET.

SIR,—With reference to the observations in your journal on Tracheotomy, I would suggest that the tube used should be double—that is, one tube contained within the other. By that means the inner tube can be removed and cleansed, and then replaced with little trouble and great ease to the patient. Sponging, mopping, and the use of feathers, &c., would thus be avoided.—I am, Sir, yours truly,

Strand, March 15th, 1881. W. M. HILLES.

VACCINATION AND REVACCINATION.

To the Editor of THE LANCET.

SIR,—I find that some medical men in this neighbourhood are daily in the habit of making use of lymph from vesicles in cases of revaccination. If this be an unsatisfactory mode of performing the important operation of vaccination, publicity of the fact is most desirable. Trusting that you may agree with me as to the importance of the subject, and find space for this short letter, I remain, Sir, yours, &c.,

Earl's-court, S.W., March 24th, 1881. ALEX. M. LANG.

"HOME FOR LITTLE BOYS."

SIR STAFFORD NORTHCOTE very kindly and ably presided on Saturday last over the dinner celebrating the seventeenth anniversary of this benevolent institution, in which 300 little boys found something as like a home as it is possible to supply in the absence of the real one.

F. P. S.—There is no special work on the subject. See books on Physiology; Quain's Anatomy (last edition), Kölliker on Development, and Senff.

Mr. E. J. Day.—It is not desirable to revive the discussion of the subject.

SOCIETY FOR THE ABOLITION OF VIVISECTION.

To the Editor of THE LANCET.

SIR,—In reply to your leading article of the 19th inst., pray permit me to state publicly in your columns that the assertion therein made—viz., "their mode of carrying on the agitation has been, to say the least, unscrupulous and undignified," is without foundation in regard to the original Society for the Abolition of Vivisection.

In the *Morning Post* and *The Times*, of April and May, 1877, this Society disavowed any approval of the sensational and revolting illustrated placards which had been put up in the streets and public places of the metropolis and inserted in a penny weekly newspaper (the *Police News*), addressed to a certain class.

The Society—which gave the first great humane impulse to the public mind by its publications, the press, its numerous and costly advertisements and correspondence with eminent physiologists, and which obtained the appointment of a Royal Commission, and gave evidence on three days before it—has no connexion with persons who make a convenience of the cause, and seek notoriety or subsistence by a humane enterprise.

The Society had nothing to do with the "anti-vivisection" meetings got up in Peterborough and elsewhere, but regrets itinerant and incapable exhibitions as bringing discredit on the cause.

As to the Bill in Parliament, we repudiate it. Our opinion has always been that to introduce a Bill into Parliament before the country is educated is useless.

I remain, Sir, your obedient servant,

March 22nd, 1881. GEORGE R. JESSE, Hon. Sec., &c.

"INFLUENCE ON WOMEN OF SPECIAL BRAIN-WORK."

To the Editor of THE LANCET.

SIR,—I have read your leading article this week on the above subject with very much interest, where you show so clearly, to my mind at least, the injury done to the brain of the offspring by not so much the education of the woman as by the natural talent she has been endowed with.

I cannot think you spoil the woman by education, unless that education be in medicine and surgery; nor can I think that brain development is at all arrested in the offspring because the parent should be engaged as a medical practitioner; but I am convinced, from some experience too, that the brain of the offspring suffers from the study and occupation of the mother during pregnancy in literary pursuits.

One case in point: My wife is a literary woman of considerable reputation, having written and published several works. I am an ordinary individual, perhaps an average member of the profession. I have three sons, none of whom I could by any means educate sufficiently to enter any profession for want of brains enough to retain what they were taught. Yet they are smart fellows for other pursuits, and doing well at what I have placed them; but there is an entire want of literary taste in all three, and always a disgust to learning.

I have two daughters sufficiently intelligent, but no taste for medical literature, and although I have been disappointed at not having one of my sons in the profession, nothing would induce me to substitute a daughter, thus for ever to bury her womanly charms by changing her gender.

For a long time I have been favourable to women occupying the department of midwifery, and would willingly relinquish my right in that branch of the profession to them. When I was learning it I was obliged to recognise the authority of two celebrated French women as possessing the largest experience even in operations. Why not now give to English women the same right? I mean as a superior class of nurses doing the duty of general practitioners at present among the working classes, what in Ireland is generally done by midwives.

With regard to diseases of women, I fear it dips a little too deeply into anatomy, pathology, and physiology for them unless they are educated under the usual curriculum, and which, to my mind, is altogether out of place; but, were it not so, I say by all means give them that department as well.

I am, Sir, yours, &c.,

March 6th, 1881. M.D.

"MULTIPLE LIVER ABSCESS IN CONNEXION WITH DYSENTERY; DEATH."

To the Editor of THE LANCET.

SIR,—Anent the interesting case of the above, described by Dr. Henderson, of Shanghai, in THE LANCET, January 8th, 1881, p. 55, I would beg, with your permission, to state that about four or five years ago there was a similar case under the care, at first of Dr. Cameron MacDowall, and subsequently under my own. A full report of it together with our remarks on the symptoms and morbid appearances we at the time published, conjointly, in the columns of the *Indian Medical Gazette*. We then seized the opportunity to discuss briefly the pernicious influence of malaria upon the hepatic and splenic functions as it appeared to us, and we also took occasion to indicate the futility of operative measures in cases of multiple—we then preferred to use the word "multiple" ourselves—abscesses of the liver. Perhaps Dr. Henderson and our other medical brethren would like to refer to our article, in which they will observe that, though Dr. MacDowall resorted repeatedly to Dieulafoy's pneumatic aspirator, and evacuated, not unsuccessfully, large quantities of pus, and this, indeed, with temporary relief to the patient, yet the disorganisation of the organ, as found after death, was such as to our minds to hopelessly preclude all chance of recovery on anatomical grounds.

I am, Sir, yours, &c.,

India, January, 1881. JOHN C. LUCAS.

Querens.—1. Certainly not; a qualified medical man is at liberty to practise in any part of Her Majesty's dominions excepting any in regard to which he has contracted not to practise in.—2. There would be no propriety in their doing so.—3. There is nothing wrong in the titles. A young practitioner is apt to be impatient in commencing practice. His great aim should be to be in the way of duty, which comes when it is least expected, and to adhere to those great principles of ethics the observance of which distinguishes professional from ordinary commercial behaviour.

Constator.—We have no doubt the examination in question has been abolished, as all the regulations bearing upon it are omitted.

Clericus, M.A., has not enclosed his card.

A. Z. had better consult his usual medical attendant.

COMMUNICATIONS, LETTERS, &c., have been received from—Dr. Byrom Bramwell, Edinburgh; Mr. Dodd, Rillington; Mr. Wright, Romford; Dr. E. L. Jacob, Epsom; Mr. Bryant, London; Dr. Mundie, Hessle; Mr. S. J. Rennie, Workington; Dr. Ward Cousins; Mr. Tegetmeier, London; Mr. E. J. Day, Dorchester; Mr. L. Tait, Birmingham; Mr. Judge, London; Dr. Lyster, Liverpool; Dr. Renner, London; Mr. H. Faulds, Tokiyo; Mr. Harding, London; Dr. Wise, Geneva; Mr. Evans, Bridport; Dr. Swift Walker, Hanley; Mr. W. J. Mickle, Bow; Mr. Weekes, Barcelona; Mr. S. Wilkinson, London; Mr. Digby; Mr. Ed. Jones, Sydenham; Mr. Shelley; Mr. Holderness, Windsor; Dr. Tripe, London; Dr. Macdonald, Cupar; Mr. Burdett; Mr. Jesse, Henbury; Mr. Shirtliff, Kingston-on-Thames; Mr. Haig, Torquay; Mr. Howe, Ripon; Mr. Lang, London; Messrs. Smith and Son, Dublin; Dr. Harries, Aberystwith; Mr. Ashmead, Brierley-hill; Mr. Porritt, Huddersfield; Mr. Smith, London; Dr. Silcock, London; Mr. Newman, London; Mr. Norris, South Petherton; Mr. J. Startin, London; Mr. Leuf; Mr. Sparrow, Middlesbrough; Messrs. Law and Son; Dr. Michael Taylor, Penryth; Dr. Barraclough, Dulwich; Mr. Wynter Blyth, London; Messrs. Leader and Sons, Sheffield; Messrs. Night and Garrard, Rotherham; Mr. Jackson, London; Surgeon-General J. K. Barnes, Washington; Surgeon-Major Melladen; C. H.; Beta; A Sanitary Engineer; Verax; F. P. S.; R. H. F.; The Registrar-General; A Family Doctor and Apothecary; L.S.A.; W. B.; A. B., Birmingham; Medico, Rhyl; &c., &c.

LETTERS, *each with enclosure*, are also acknowledged from—Mr. Adams, Marshfield; Messrs. Nuttall and Co., Burnley; Mr. A. Kerry, London; Mr. Hadstry, Cape of Good Hope; Mr. Harris, Wolverhampton; Mr. Birdwood, Gravesend; Mrs. Glendinning, Portsdown; Mr. Lyle, Durham; Mr. Hoare, Wansford; Mr. Gardner, Edinburgh; Mr. Wiley, Birmingham; Mrs. Boning, Cambridge; Dr. Law, St. Leonards; Messrs. Ferris and Co., Bristol; Dr. Stainthorpe, Wareham; Dr. Alldurfer, Cork; Messrs. Keith and Co., Edinburgh; Mr. White, Paddington; Mr. Chadwick, Islington; Mr. Millar, Long Preston; Messrs. Gorse and Co., Norwich; Mr. Parlour; Mr. Elder, Edinburgh; Mrs. Surr, St. Annes-on-the-Sea; Mr. Williams, St. George's; Mr. Phillips, Halesowen; Messrs. Gurden and Co.; Dr. Banning, Dunblane; Mr. Moore, Winsford; Mrs. Henby, Newport Pagnell; Dr. Maclachlan, Longtown; Mr. Cooper, Torquay; H. J. M.; Surgeon; X. K., Blakeney; A. B. C., Manchester; Statim, Derby; Medicus, Islington; Registrar, Bath; Y. Y. Y.; Dorset; Doctor, Burnley; N. W.; F. N. B., Bury St. Edmunds; T. G.; G. A. G.; Zoedone; E. W. C., Stapleford; Medicus, Fenchurch-street; B. B.; Medicus; C., Robert's-bridge; Cantab., Kineton; W. J. C., Wigan; M.D., Adelphi; Y. X.; A. P. S., Eastbourne; Alpha, Newcastle-on-Tyne; M. M., Edinburgh; &c., &c.

Auckland Times, Revue de Chirurgie, Food and Health, Dorset County Chronicle, Kentish Express, Traders' Times, Aberystwith Observer, &c., have been received.

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Agent for the Advertising Department in France—J. ASTIER, 67, Rue Caumartin, Paris.